

THE
MEDICAL EXAMINER,
AND
RECORD OF MEDICAL SCIENCE.

NEW SERIES.—NO. CIII.—JULY, 1853.

ORIGINAL COMMUNICATIONS.

On the Influence of the Mineral Kingdom on Disease.

By J. P. HIESTER, M. D.

READING, PA., June 8th, 1853.

To the Editors of the Medical Examiner:

In the January No. for 1852, you did me the honor to publish a short communication on the above subject, which had been read before the Berks County Medical Society. I there endeavored to show, by established facts and a course of reasoning, the influence exerted by inorganic matter, as presented in the natural state, upon organized beings.

A sufficient number of facts were adduced to prove the influence of soil upon vegetables, and the probable effect of soil and water, or *minerals in solution*, upon the lower orders of animals and fishes. From analogical reasoning it was conjectured, that the higher orders of animals were also subjected to a greater influence by mineral agents than we are, in the present state of our knowledge, prepared to admit.

It was farther concluded, from the activity of many of the mineral agents that are known to enter into the composition of

the animal organism, either necessarily or adventitiously, that their influence might, and probably did, produce decidedly pathological conditions, or at least such changes as would strongly predispose to disease; and that even deficiencies of many mineral substances in certain soils, might produce such conditions or predispositions. Iodine, which late observation has shown to be far more extensively distributed than was formerly supposed, was particularly referred to as one of these active agents.

In verification of the above conjectures, I would beg leave to call the attention of your readers to the following well-authenticated and interesting facts contained in a communication made to the French Academy of Sciences, extracted from the May No., 1853, of the *Journal de Médecine et de Chirurgie Pratique*.

“M. Chatin communicated to the Academy the following extremely curious facts:

“Fully and Saillon are two contiguous villages situated in the midst of the vineyards that border the right bank of the Rhone. Fully, where the whole population is goiterous, is remarkable for its great number of Cretins; Saillon, on the contrary, was renowned in the Vallais for the fine health of its inhabitants, who were scarcely ever attacked by goitre, and more rarely still by cretinism. The contrast was the more marked as the conditions of altitude, aëration, exposure, &c., are as nearly alike as is possible in the two villages.

“But within a few years Saillon has lost the happy exemption which it enjoyed;—goitre and cretinism have increased to a degree that scarcely leaves Fully any room for envy. The observations made by M. Moulin, President of Saillon, prove that the progress of goitre and cretinism date from the time when, in defiance of the counsel of M. Barmont, brother of the Swiss Ambassador at Paris, the commune took the water, destined for the use of the village, formerly received from a lower point of the torrent, (the Salente,) from a point where it is precipitated in a cascade from the glacier of the mountain. Between these two points, a strong thermal spring (temperature about 28 C.) falls into the torrent, constituting nearly a sixtieth part of its waters.

“From my analysis it results:

“1. That water taken from above the point where the hot spring enters the torrent, and which is that at present used in Saillon, is destitute of *Iodine*, like that of Fully, and of the greater part of the districts of the Vallais.

“2. That the water taken from the point whence Saillon was formerly supplied is more iodized than the water used in Paris.

“3. That the water of the thermal spring above referred to, is a true mineral water, containing at least sixty times more iodine than the water of Paris, and that of most of the countries where goitre is unknown.

“These facts go to prove:

"1. The existence and nature of a *local* cause of goitre and cretinism.

"2. The possibility of introducing iodized water as a prophylactic in these maladies, both as a regimen for man, and for animals producing meat, milk, &c."

Notes of Cases. By GEO. W. BROWN, M. D., Port Carbon, Pa.

CASE I.—STRANGULATED HERNIA.

I was called to see Mrs. H., a tall, spare woman, 59 years of age, a native of Scotland, January 9th, 1852. I found her complaining of severe pain in the right groin, and extending from that point over the whole abdomen; a constant desire to go to stool without being able to pass anything from the bowels; frequent vomiting of a dark green, bilious matter; tongue very much coated with a thick yellow fur; constant thirst with a desire for cold drinks; pulse about 100, small and weak; skin warm and moist, and the countenance anxious and dejected. On examining the abdomen I found it a good deal distended and tympanitic, and slightly tender to the touch, and in the right groin a large hernial tumor. The history she gave of her case was, that twenty years previous, while in Scotland, she was assisting to take in some hay, and while in the act of raising a large forkful, she felt something give way in the right groin, and a few days after she discovered a small tumor there, which disappeared upon slight pressure, but had re-appeared after a long walk or a hard day's work ever since, but always disappeared on going to bed, relaxing the muscles and making gentle pressure upwards. About ten years since, while in Scotland, it became strangulated, but was relieved by purgatives and opiates. Latterly it had become more troublesome, coming down oftener, and being more difficult to return, as well as more painful when it was down. This morning, immediately after she arose, she was seized with the symptoms enumerated above, which have continued pretty much the same throughout the day, sometimes abating in severity a little and then returning more severely. Every attempt to swallow anything, even the blandest liquids, produces vomiting. The pain has been considerably abated by pretty large doses of the tinct. opii, which she has taken, and the application of warm fomentations to the tumor. I placed my patient in the proper position, and made use of the taxis for a short time, but very soon desisted in consequence of the pain it gave her. I directed

her to have opium 1 grain, calomel gr. iij. every three hours, the warm fomentations to be continued to the tumor, and a turpentine liniment to the entire surface of the abdomen.

Jan. 10th, 10 A. M.—Patient passed a very good night, less vomiting and less pain. Gums touched by the calomel, pulse small and weak, skin bathed with warm perspiration, abdomen tympanitic but less painful to the touch, tongue less coated and countenance less dejected. I again tried the taxis, but was again obliged to desist in consequence of the pain it gave the patient. Directed a warm bath every 6 hours, the liniment and the fomentations to be continued in the intervals. Opium gr. 1 every four hours, without the calomel, and large injections of warm water every four hours, so as to distend the colon to its utmost extent.

Jan. 11th, 10 A. M.—Patient passed a very good night, passed some wind from the bowels but no feculent matter. All the symptoms are relieved, no pain, and scarcely any sickness of the stomach, mouth very sore, teeth all loose, tumor less tense and less painful to the touch, pulse fuller and stronger and the countenance somewhat cheerful. Continue treatment, with the addition of light nourishment. My patient continued to improve (excepting that she passed no feculent matter from the bowels) up to the morning of the 15th, when she was again seized with violent pain and vomiting, which soon became stercoracious. The pain commenced in the tumor, but soon extended over the entire abdomen, which soon became very tympanitic and very tender to the touch. In the evening I told her that nothing but an operation would relieve her, to which she said she would submit, if no better, by morning. I directed one grain of morphine every four hours, and left.

Jan. 16th, 10 A. M.—Countenance sunk and anxious, skin cold, pale, shrunken and covered with a greasy perspiration, pulse small and thready, patient unable to articulate so as to be heard, unless the ear is placed close to her mouth. Increased tympanitis, but less pain. She readily consented now to an operation, and Dr. D. J. McKibbin having been called in consultation, readily agreed with me as to the necessity of operating immediately as the only chance for the patient, but considered that almost desperate under the circumstances. We now gave her

tinct. opii ʒij. , and waited half an hour, and then placed her upon the table in proper position to operate. I commenced my incision immediately above the base of the tumor and carried it over it in the course of the femoral vein to a point about half an inch below it, and down to the superficial fascia of the thigh, which I pinched up and separated from the parts beneath by rubbing it between my thumb and finger, and made a slight opening into it and divided it upon the grooved director. I divided each successive layer in the same way till I came down to the sack, which was easily detected by the blue appearance and elastic feel of the distended intestine within it. I now passed my finger upon the outside of the sack and divided Gimbernats ligament, when the stricture was immediately relieved, and the gas passed out of the strangulated intestine. I now attempted to return the sack and intestine entire, but found the sack adherent in every part so as to render that impossible. I then dissected the sack loose with my fingers and the handle of the scalpel, and attempted to return, but this I could not accomplish in consequence of another stricture at the neck of the sack. I now concluded to open the sack and divide the stricture at its neck, but this I found very difficult to accomplish in consequence of the intestine having contained nothing but gas, and this having escaped as soon as the stricture upon the outside of the sack was divided, and left it like a piece of wet bladder; but after a good deal of trouble I succeeded in separating the sack from the intestine, and puncturing it, then by seizing the whole and drawing it down, I was enabled to pass the director and divide the sack upon it. As soon as the sack was divided there was a discharge of about one and a half ounces of clear serum. The bowel appeared rather dark and congested, but otherwise healthy. I returned the bowel first and then the sack, and closed the wound by three stitches of the interrupted suture and straps of adhesive plaster. The patient was very much exhausted, but expressed herself entirely relieved. We now placed the patient in bed upon her back, with the right thigh flexed upon the pelvis in such a manner as to relax the abdominal muscles, and prevent any pressure upon the wound by the contents of the abdomen, and applied the simple warm water dressing. To have opium one gr. every four hours, with light broth and wine whey for

nourishment. To be kept perfectly quiet and from changing her position.

Jan. 17th, 10 A. M.—Patient passed a very good night, no pain, very little thirst, gums less sore, tongue cleaning off, skin warm and moist, pulse one hundred, full and soft, countenance natural, less tympanites, and less soreness upon pressure. Passes wind freely from the bowels, but no feculent matter. Continue treatment as before.

Jan. 18th, 10 A. M.—Patient continues to improve; relishes nourishment, but still has passed no feculent matter. Continue treatment, with the addition of an occasional injection of warm water.

Jan. 19th, 10 A. M.—Patient continues to improve, wound nearly united by the first intention. Bowels have been freely moved by the injection; stool natural and consistent. From this time forward my patient continued to improve rapidly, and in about one month after she was operated upon she had entirely recovered. I saw her three days since, and she is in robust health, and the hernia seems to be radically cured, the cicatrix being firmly united to the pubic bone. She experiences no inconvenience from it whatever. The prominent points in this case are: 1st. The complete relief of all the symptoms of strangulation produced by calomel and opium and the soothing treatment, although the stricture was not removed. 2d. The hopelessness of any attempt at reduction, by the taxis, of an old hernia, although the patient may tell you, as mine did, that the tumor only came down that morning, for I am satisfied, from the amount of adhesions, that the hernia had been irreducible for the last ten years. 3d. The injury that would result from persisting in the taxis in such a case, the use of tart. ant., the tobacco injection, and the many other remedies that are recommended in the books, in strangulated hernia. And lastly, the complete success of an operation under circumstances apparently so hopeless.

CASE II.—DISLOCATION OF THE FEMUR.

I was called to see Samuel B., November 22d, 1850, and on enquiry I found that some two hours previous he had been mining, upon his knees, when a fall of coal came down and struck him upon the back part of the pelvis, in such a manner as to force

the head of the femur out of its socket and place it upon the dorsum of the ilium, presenting outwards and backwards, with the great trochanter resting against the edge of the acetabulum behind, the limb being shortened near three inches, the foot inverted and resting upon the other above the instep. I had purchased Dr. Jarvis's instrument a few days previous, and I thought this a very good opportunity for testing its good qualities; so I placed my patient upon a common deal table, and applied the instrument according to the Doctor's directions; and now I supposed that all I had to do was to turn the ratchet and the bone would fly to its place; but after torturing my patient for some two hours, trying my utmost to make the extension in the line of displacement, I gave it up in despair, and adjourned the case till nine o'clock the next day, very much cooled in regard to the infallibility of the instrument I had purchased, at least in my hands. But still supposing that my failure was more owing to my inability to apply it than to any fault in the instrument, I sent a note to Dr. Carpenter, (upon whose recommendation I had been induced to purchase the instrument,) a gentleman of acknowledged abilities in all cases of the kind, asking him to meet me in consultation in the case. We met punctually to the time, and I again applied the instrument, and asked him to take charge of the limb and reduce it. He took charge of the limb, and, laboring for near three hours, he gave it up in despair, also perfectly satisfied that he could not make the extension in the line of displacement, (the very thing for which the inventor recommends it so highly,) and that the lever placed upon the instrument would make a very nice plaything for a child, but would certainly never subserve the purpose for which it was intended, viz., forcing the head of the bone out of its malposition. We now put the patient under the influence of chloroform, and applied the sheets in the old way recommended in the books, but soon found that we were unable to make extension sufficiently long to overcome the resistance of the muscles; consequently we adjourned the case until 3 o'clock P. M., when we again met and applied the compound pulley, and put the patient under the influence of chloroform, when it was reduced in twenty minutes. The patient was placed comfortably in bed, and at the end of a week had so far recovered as to walk about with

ease. I would say in this connection to all medical students, beware of all patented instruments for setting fractures and reducing luxations, and in their place get a few good splints and a set of compound pulleys, as they alone can be relied on in practice, notwithstanding the many certificates they possess from many of our professors who stand deservedly high in the profession.

CASE III.—DISLOCATION OF THE FEMUR.

I was called in consultation with a neighboring physician to Dennis D., a young man about twenty-five years of age, a miner by occupation. Some four hours previous, while engaged in mining, upon his knees, a fall of coal came down, and a large piece with a sharp cutting edge struck him immediately over the os coccyx, cutting the soft parts down to the bone, passing over the sphincter ani muscle, which receded before the force of the blow and was uninjured; it passed through the entire length of the perineum and through the scrotum, separating the testicles, leaving one upon either side of the incision. The depth of the incision was about one inch. I cleaned out the wound by removing the coal dirt and other foreign substances, and closed it with the interrupted suture and adhesive straps, and ordered the simple warm water dressing. Not supposing he had received any other injury, as he made no other complaint, I made no further examination, but left him in the hands of his attending physician. On the 8th of January, 1852, just seven weeks after he had been injured, I was again called to see him, and was informed that he had not yet been able to leave his bed, and that he had dismissed his physician because he was dissatisfied with his attendance. On examination, a dislocation of the femur upwards and backwards into the sciatic notch was discovered, which had occurred at the time of his injury. The wound of the perineum was completely cicatrized, and I must confess that I felt mortified that I had overlooked the dislocation at my first visit, as I knew the attending physician, who was quite a young man, depended upon me for a proper diagnosis in the case, and as I had failed to detect it he had never suspected such a thing. Seeing that the man must remain a cripple for life if the dislocation remained unreduced, and that my reputation must suffer as a necessary consequence, I determined, notwith-

standing the length of time it had remained in its malposition, to attempt its reduction at all hazards.

On the 9th of January, in consultation with Dr. McKibbin, we placed the patient on a bed upon the floor, and applied the compound pulleys with the counter extending band upon the injured side, and kept up extension for about 20 or 25 minutes at a time, with intervals of rest for about two hours, without being able to dislodge the head of the bone from the position it had taken. We then shifted the counter extending band to the sound side, and after keeping up extension constantly for about half an hour, the head of the bone gradually slipped into its place without the slightest noise. So gradual had been its reduction that we were not satisfied that it was reduced until, in order to satisfy ourselves, we commenced flexing and extending the limb when it slipped out again. We again applied the pulleys and reduced it with a very slight effort; and again, in trying to satisfy ourselves of its proper reduction, it slipped out, but was again reduced with a very slight effort; when we placed the patient upon his back in bed and bound his knees together with a strong roller, and kept him in that position for four weeks, when he was permitted to get up and go about on crutches. He has at this date entirely recovered the use of his limb. The acetabulum appeared to be almost entirely filled, hence the ease with which it slipped out of its place after reduction. That the head of the bone occupied the sciatic notch was clearly demonstrated by an examination through the rectum, and by the canal left in the fibres of the gluteic muscles after its reduction from that point to the acetabulum, caused by its having traversed from one point to the other.

The prominent points in this case are: 1st. The necessity of a thorough examination of every case to which we are called, and the great injury that may result, not only to the patient, but to our own reputation and to the profession at large, from its neglect. 2d. That a dislocated femur may be reduced, nearly two months after the accident, without injury to the patient; and 3d. The necessity of keeping up extension and counter-extension continuously till the resistance of the muscles are overcome, or while the strength of the patient will permit, before giving up our effort.

Enlistment of Seamen and Examination of Recruits. By
G. R. B. HORNER, M. D., Philadelphia, Surgeon U. S. Navy.

The importance of this subject must be apparent to every reader, and I shall not enlarge upon it, but go on to speak of the most interesting parts. By the term seamen we mean all persons who enlist for the naval or merchant service, whether boys or men—mere landmen, or sailors who have become more or less perfect in their trade. We also include in the term all persons serving in other capacities, on board ships of war or merchantmen, whether impelled by sails or by steam—and, we may now add, by heated air. By the term recruits we mean not only seamen of any grade, but marines, engineers, warrant and commissioned officers, &c., of any kind, who are subject to the inspection of surgeons and physicians, privately or publicly, for land or sea service, in our navy, army, volunteer and militia service. To every medical man the duty of inspecting such persons is liable to happen, and to him is left the decision, whether they be fit or unfit for service, either before or after enlistment; and he may be called on to reinspect recruits seeking discharge, or deemed mentally or corporeally unfit for service by their commanders. Frequently friends and relations may be the applicants for their discharge, and claim it on account of their ill health, when no other good reasons can be urged. It is very common for recruits to give most favorable accounts of themselves, to get enlisted, and, after admission into service, to become despondent, from loss of natural or artificial excitement—to regret what they have done, for various reasons, and feign or really deem themselves incompetent to discharge the duties required of them. The next act is to interest friends to get them discharged. To effect this many means are adopted, but none so willingly and conveniently as those intended to impose on the doctor, or to convince him that either he or some other medical man had overlooked certain defects at the recruit's admission into service. It becomes then necessary for the inspector to keep all his senses awake, to prevent imposition, professionally, upon himself, to do justice to those inspected, and above all to secure for public or private employment men who are competent in mind and body to discharge their duties. The passing of an

incompetent person may please him and his friends, but injure the service in which he engages, and cause a fine to be imposed, much to the damage of reputation and mortification of the inspector, as in an instance related to me by a commander of our navy. An Englishman, shipped for the naval service, feigned lameness in one of the lower extremities, and to substantiate his assertions of disability—even before he got to sea—exhibited a huge scar upon it. A survey of him was ordered—the above and several other officers were ordered for that purpose—at Norfolk, and believing the man lame, they pronounced him “unfit for service,” and recommended his discharge from it to the Secretary of the Navy. He accordingly directed it to be done, and the surgeon, most unjustly, to be mulcted in the sum advanced as pay, which is generally for three months. The order was promptly obeyed—the seaman was regularly discharged from the navy—a boat took him ashore, and no sooner had it touched the beach than he leaped on land, jumped into the air with joy and exultation, made a most insulting exclamation and gesture at the boat’s crew, and ran into town as actively as any man in the ship could have done. One of my earliest recollections is of a like survey of a soldier in a militia regiment encamped at my native place, and on their way to defend the State against the invasion of the English, infesting with their fleet the lower counties of Virginia. This feigned invalid, however, was not so successful as the above. He had a very sagacious, old and experienced country physician, residing in the adjacent village, to deal with him. He was not to be fooled, and required ocular demonstration. The soldier, therefore, had to pull down his trowsers, to exhibit the rupture complained of. The doctor could find none—swore he was as sound as himself, and refused a certificate. However, the man got his discharge, though in a dishonorable way, for he was ordered to leave the camp, and was disgraced by being marched through the entire length of the village, with a drummer and fifer playing the rogue’s or some other degrading march, and a crowd of boys hooting at his heels. To avoid similar impostures to the one first mentioned, and to be able to prevent the successful attempt of any individual making one like the second, or to keep out of employment persons physically unsuited for it, I will now

mention the general rules adopted by myself and others, and which I recommend after the inspection of more than two thousand persons within the last eight years, without counting many straggling cases examined by me while not engaged regularly in the recruiting service, and likewise exclusive of many hundreds inspected anterior to that time, in active service, and while attached to the U. S. Rendezvous in 1834, '35 and '36.

To secure the government against the introduction of physically unfit persons into the naval service, the rule adopted there is for the officers of the line to refer them for physical examination to the surgeon, after they have been found in other respects suitable. If he pass them, he gives printed certificates of his having found them fit for the naval service, and on the same one writes a description of them, viz. : of their "birth-place, age, color of the eyes and hair, complexion, trade, height, marks of vaccination, &c., and the number of years they have been at sea and in service." When the surgeon has finished these certificates and signed them, one of the other officers fills up the blank orders at the foot, for the recruits being taken on board the receiving vessels. They are then, if sailors, generally given several days' liberty, and retire with their landlords, after these have taken the certificates and become their security. For this and money advanced they charge a large per centage. The recruits having had their frolic, if sober enough, are, at the expiration of their liberty, delivered on board, with the clothing and bedding required, and re-examined by one of the medical officers attached to the station. To avoid any ill feeling which might result from a recruit's being rejected by him, the junior medical officer, Passed Assis't Surgeon J. O'C. Barclay, first re-examines, and if he should find the recruit unfit for service, is required to return him to the Rendezvous and report the defect found. Should the surgeon there still deem him fit for service, the recruit has to be referred to myself, who give the casting vote after a third examination. But such is the strictness of the first one, that this is rarely necessary; and it is surprising, considering the excesses into which the recruits engage before their delivery on board.

For the marines enlisted on this station there is only one examination, which is made by myself or assistant, according to

the time of the day when they present themselves. But all the candidates—as officers of the Engineer Corps—who attended the late examination here, had first to be inspected by me, and to get their orders endorsed with a certificate of their having been examined and passed physically. Of the first I made a general examination, with as little exposure of the person as possible, as they all had a gentlemanly appearance; but having understood from a member of the Board of Engineers that one had been at a former session rejected for rupture, I was more strict with the last examined, and in addition to a written declaration of their soundness, which was read to them for their assent, I omitted nothing thought requisite to detect important defects, though on examination of the above candidate no rupture could be found; and he only had an unnatural depression of the sternum, which was not deemed a sufficient cause for rejection. The form of declaration referred to was this:

“NAVY YARD, Philada., May, 1853.

“I hereby certify that my health is robust; I am free from scrofula, consumption and other hereditary diseases; that I am not suffering from epilepsy, stricture, rupture, or other complaints and injuries, and feel myself able to perform any physical duties required of me as an engineer. All my senses are perfect.”

To the physical as well as mental qualifications of engineers, great importance is attached, as their duties are very arduous. They have to undergo great exposure to heat about the engines and fires; they labor hard—watch long and frequently—have use for the nicest and most accurate sense, especially of sight and hearing, in the detection of defective machinery, and are more constantly in active service, it is thought, than any other grade of officers. Acting on a knowledge of these facts, I was under the unpleasant necessity of rejecting three out of thirty-one for defective eyes: one person had a perfect opacity of the left one, and two of them were near-sighted. Nevertheless, one of these procured influence enough to be examined professionally. If, then, he should get into service, and from inability to see a flaw in a steam boiler or other machinery, a disaster should happen, let not the blame rest on his medical inspector.

Of candidates for entrance into the medical corps of the navy,

physical perfection is also required; and besides undergoing a satisfactory examination to ascertain that, each candidate has to give a certificate similar to the one quoted. That all persons interested may be fully aware of the requirements demanded, I will state that no one is professionally examined before he has undergone a satisfactory personal inspection, and signed this certificate of "Physical Capacity."

"Philadelphia, 1853:

"I declare on honor, that my health at this time is good and robust, and to the best of my knowledge and belief I am free from constitutional defects, and without any predisposition to epilepsy, phthisis pulmonalis, gout or chronic disease of any kind. I have neither circocoele, stricture of the urethra, hemorrhoids, nor hernia. Each and all my organs of sense are without imperfection.

*"Candidate for the Office of Assistant Surgeon
in the Navy of the United States."*

Had one of the candidates who appeared before the late Board of Naval Surgeons been aware, previously to his leaving home, that such a certificate as this was required, he might have been saved from the fatigue and expense of a very long journey from the West. That other candidates for the corps may not suffer similarly, their attention is called to these facts and to the following "General Order:"

"Navy Department, December 13, 1852.

"It being desirable to obtain the best professional ability which may offer, for the Medical Corps of the Navy, the Department directs:

1st. That hereafter annual Boards shall assemble, at such place as may be designated by the Department, about the close of the lecture seasons of the Colleges, for the selection of candidates for admission into the Medical Corps of the Navy.

2d. Each Board will select from qualified candidates, such a number of the best as may be necessary to meet the demands of the service for the following year.

3d. As vacancies occur in the Medical Corps of the Navy, appointments will be made from the qualified candidates in the order of succession in which they may be named by the Board; but no appointment will be given to any such candidate who is over 25 years of age.

4th. No qualified candidates will be held over for appointment after one year, but all such must be re-examined and take position in the class in which they are last examined-

5th. Every candidate for admission will be examined, strictly and carefully, as to his physical capacity for the service, and the Board will make a separate report in each case, which will be forwarded *direct* to the Department, to be placed on file with the testimonials of the candidate. * This examination will precede that as to professional qualifications, and no candidate who is not physically qualified will be examined professionally.

6th. In detailing Boards for the examination of Assistant Surgeons for promotion, as far as practicable, a majority of the members who have served on the Board next preceding, will be selected, in order that the relative position of Assistants of the same date, who have been examined at different times, may be more readily determined.

JOHN P. KENNEDY, Secretary of the Navy."

It may be likewise useful to state that candidates for the corps of midshipmen, previously to their admission to the naval school at Annapolis, must undergo a satisfactory physical inspection by two surgeons appointed for the purpose.

With regard to that of ordinary recruits, as seamen and marines, not so much delicacy is observed as with officers. Every man or boy is entirely stripped of his clothes, a close scrutiny is made of his whole person, and every question is put which may serve to detect natural or acquired defects. To enable the inspector to examine without making omissions, it is best for him to write down all leading questions; if he should not, he may fail occasionally, by omitting some, to detect serious defects—to make the government or employers liable to impositions on account of injuries received anterior to entrance into service—and to admit very useless and annoying persons, such as those affected with stricture in the urethra, piles, fistula, neuralgia and incontinence of urine while asleep, which on board a man of war or other crowded vessel is a great nuisance, from the foetid condition in which the clothes and bedding of the invalid suffering from it are kept. Equal annoyance may be occasioned by the foetid exhalations given off by the breath or feet of some individuals—and they ought to be rejected, though perfectly able to perform the duties required of them—as they corrupt the air, and prevent others from the performance of theirs. To put the recruit at ease and compose him,—for a young one is very apt to become agitated and nervous,—affability and kindness of manner should be observed; and he should be questioned on general subjects, by which his sanity of mind may be learned, and that his general condition of health anterior to

his application for enlistment may be discovered. When he has become composed he should be made to pace backwards and forwards in a spacious room, that the movements of his joints may be observed ; he should stand first on one foot then on the other, raise them to a horizontal position alternately, and cast each one backwards as high as possible. The hands and arms should perform like evolutions ; the shoulder joints, clavicular junctions, elbows, wrists and fingers be inspected, to find out ankylosis and want of proper flexure, from this or luxation. The loss of a thumb or index finger, deformed feet, toes interfering with walking, varicose veins, signs of scorbutic and scrofulous affections, marks of large ulcers, white swelling, carious bones and deficient muscular development, smallness of size disproportioned to age, symptoms of anæmia, unnatural palor and sallowness, palpitations of the heart continued after the candidate's mind is composed, a very frequent, full and strong pulse in the same condition, I consider causes for rejection. But this, in the above instances and others, must be in a measure governed by length of service, mental or professional qualifications, and the specific duties to be done. A man who could not run aloft, up the shrouds, furl a sail, or clamber up a ledge of rocks, and leap beyond an enemy's trench, might make himself very useful below in working a gun or standing guard. The same remarks will apply to the merchant and militia service.

That no oversights or omissions may happen, I recommend system to be observed in examining the different parts and organs of every recruit, beginning with his head and descending to his feet ; and that the inspector ascertain the healthy or unhealthy condition of his various tissues. His scalp should be felt, pressure made upon the cranium to discover fractures, depressed and deficient bones ; the hair ought to be raised to find tinea capitis and other affections. The senses should be tested, particularly those of sight and hearing, the mouth and teeth inspected, the chest sounded, the abdomen, in its whole extent, be felt and pressed upon, the recruit made to speak, to find out whether he stammers, stutters, or has unnatural tone of voice ; and when stricture of the urethra is suspected, he ought to be required to urinate or to undergo the introduction of a bougie.

But this and other disagreeable examinations are objected to

by recruits, deter them from offering for inspection, and should never be wantonly performed. Even the nudity demanded of them is offensive to some, and I have known several to refuse to strip, and decline enlistment before they would submit to it. In examining the groins and genital organs, special care is to be observed that a rupture be not concealed by being thrust up just before examination, and that a chancre or bubo, either forming, or in the last stage of suppuration, may not be overlooked, or a gonorrhœa may not escape notice. In shipping boys and landsmen, who are mostly superabundant, and can be had at all times plentifully, the latter complaints are good reasons for rejection; but in men who are well drilled, or good sailors, who are always scarce, they are not so, and it is better that these should be taken and cured if it can be effected in a short time. By such indulgence very valuable men may be got or retained in service, and kindness and humanity practised to those who have an additional claim on it from their good conduct and great efficiency. But in these cases the inspector must be in a measure governed very much by the certificate he has to sign—for they differ greatly in purport—and it was in consequence of the one used at the Philadelphia rendezvous, when I went on duty there in October, 1845, being too stringent and preventing me from exercising due discretion or indulgence, that I urged its revocation, and had introduced the present one, which simply states that the recruit—setting forth his name and rank—has been examined and found “fit for the naval service,” instead of stating that he is free from bodily defects, as is done in the certificate given each marine enlisted on this station. In many instances I have had the alternative of signing what was not true, as regards defects, or of rejecting desirable men; and to avoid this, I have had several times, with the assent of the commander of the guard, to insert exceptions by writing the defects forming them on the printed certificate. In consequence of such cases, the medical examiner may offend the candidate, dissatisfy the person who wants his services, delay the formation of a regiment, or prevent the early equipment of a ship or squadron. For notwithstanding the change effected by me in the certificate at the rendezvous, I rejected between 10 and 11 per cent. of applicants, or nearly 200 out of 1828, examined

by me while last on duty there—that is, including some examined by others while I was absent and on a Board of Examiners. The sum total of rejections in 2010 inspected was 209, or more than 10 per cent. Of these cases, eleven were rejected for varicose veins of the legs, the same number for varicocele, twenty-five for circocoeles on the left side without exception to the best of knowledge, thirteen had myopia, nine ophthalmia, five blindness of the left eye, ten imperfect forms, fourteen various cutaneous eruptions, eight diseased heart, nine debility from old age, &c., one was ruptured in the right groin, and nine had been in the left one. For this fact we cannot account, unless by ascribing it to the great expansion of the left abdominal rings—from the larger size of the left spermatic veins than that of the right ones.

Besides the complaints and injuries mentioned as just causes of rejection, we may enumerate contagious, pulmonic and cardiac affections generally, acute and chronic rheumatism and ophthalmia, diseases of the chylopoietic viscera, intestinal, herpetic and other cutaneous affections, secondary syphilis, bronchocele, epilepsy, palsy, spinal deformity or disease, intermittent or other fevers, great loss of teeth and caries of them, and malformations of the body and limbs, debility, great emaciation or exorbitant fatness; in fine, *any complaint* or injury which might excuse a man from military duty, or be urged as a reason for his discharge from it or naval service, as it is very common for such men to get into it, to become dissatisfied and procure their return home or discharge because of these defects.

As has been shown above, of the recruits rejected by me, the largest number were affected with circocoele of the left side, varicocele, varicose veins of legs, ophthalmia, myopia, and cutaneous eruptions. Of all examined, whether passed or not, a catalogue was kept and memoranda made, especially of those rejected, as after the lapse of a long time, and when it seemed probable that they were forgotten, some would make another attempt to get into service. Notes upon such persons are not only useful to the one who takes them, but to the officers who succeed or relieve him. These being unsuspecting and uninformed respecting defective applicants, might allow some to be enlisted who might prove incumbrances and nuisances, and utterly worthless, as well

from ill health and injury as from bad habits, especially that of confirmed drunkenness, which may have not only undermined their constitutions, but rendered them unfit for any kind of service, by the irregularities it produces, and by the constant tendency it gives to violations of discipline. Concerning the utility of memoranda being kept it may be proper to add, that they afford good statistics of the height, age and diseases of recruits; and moreover enable the inspectors to identify those who have already been enrolled, have failed to enter service at the expiration of their liberty, or, having done so, have deserted or been dismissed as invalids, and endeavor to get re-enlisted for the sake of another bounty or advance of wages. Two instances of such attempts at imposition have come under my own knowledge on this station; and in both of them my recollection of the impostors, assisted by my notes, enabled me positively to recognize them and prevent imposition.

BIBLIOGRAPHICAL NOTICES.

Elements of Chemistry; for the use of Colleges, Academies and Schools. By M. V. REGNAULT. *Illustrated by nearly 700 wood cuts.* Translated from the French by T. FORREST BETTON, M. D., M. A. N. S., Fellow of the College of Physicians, Philada., &c., and Edited, with notes, by JAMES C. BOOTH, Melter and Refiner, U. S. Mint; and WILLIAM L. FABER, Metallurgist and Mining Engineer. Second Edition; Philada., Clark & Hesser; 1853. 2 vols. oct. pp. 1475.

In the last number we had occasion to speak of Löwig's Organic Chemistry. We now are called on to notice a chemical work of quite a different stamp. M. Regnault has for several years occupied a very favorable position among the scientific men of Paris, owing to his valuable investigations and discoveries in various of the higher departments of chemical research. His mind appears to have a practical direction, and in the work of which the above is the title page, he has exhibited this trait by bringing in numerous applications of his favorite science to the useful and ornamental arts and manufactures. In glancing

over the pages, we perceive that the chemistry of the imponderables, usually occupying much space, has been omitted as a separate treatise, and that crystallography is largely dilated upon, with numerous excellent wood cuts, illustrating the several systems of crystals. Arsenic is placed among the non-metallic bodies at the side of phosphorus, a change of position which many chemists seem disposed to effect, although it is usually spoken of and described as a metal.

In the chapter preliminary to the metals, M. Regnault has introduced a short account of the geological structure of the earth's crust, with numerous cuts exhibiting stratification, metallic veins, etc. This is followed by a discussion of the general characters and formation of salts, in which the author takes the ground that those substances only should be considered salts which consist of two binary compounds, one of which acts as an electro-positive element or base, and the other in an electro-negative manner as an acid. Hence, he ejects the chlorides, iodides, etc. from the list. The solubility of salts is treated of in great detail, with a copper plate engraving, exhibiting the curves of solubility of the more important salts. The first class of metals includes those of the alkaline, alkaline earthy, and earthy bases; among the special notices we may mention those of the preparation of potassium, alkalimetry, nitrate of potassa and borate of soda; the manufacture, testing and analysis of gunpowder; building materials, cements and mortars; the glass manufacture and the several kinds of pottery. The metallurgy of the several important metals of the second class is introduced, and thoroughly illustrated with engravings. The steel and bronze manufacture, cannon casting, electro-plating and gilding, etc., are among the special notices.

The organic department is preceded by an elaborate account of proximate and ultimate organic analysis, the method of ascertaining formulæ, the plan of determining the acid, basic and neutral substances, and the methods, precautions and calculations necessary in ascertaining the specific gravity of the vapors and other physical properties of volatile organic bodies.

M. Regnault has not treated the chemistry of organic bodies so fully as the other department. His views appear unfavorable to the radical theory, yet they were published before the recent

discoveries of Frankland and Kolbe, which have given so much probability to that view of organic constitution. He has not attempted a scientific classification;—commencing with the hydrates of carbon and their derivatives by the action of acids and ferments, and concluding with an account of animal chemistry and the principle manufactures of organic products, such as bread making, brewing, fermented liquors, the preparation of sugar from the beet and cane, of bone-black, charcoal, leather and illuminating gas.

The original work is in four duodecimo volumes; as now presented it is embraced in two large octavos of 700 and 800 pages. The beautiful wood cuts of the original are, in most instances, well copied, the letter press is large and distinct, and the paper good. Dr. Betton has given a fair and lucid translation, free from idiomatic peculiarities. The Editors have given proof of a careful revision. They have expressed the temperature by Fahrenheit's scale, and have adopted the hydrogen scale of equivalents, which will add much to its practical usefulness. On the other hand they have left the decimal weights and measures. The attempt at rendering these would have lost its value in the constant recurrence of fractions, as expressed in the English system.

The Editorial additions are in the form of foot notes, some of which are particularly useful. Mr. Faber has very properly given an exposé of the recent isolation of compound radicals; and among the notes of Prof. Booth we observe one on the process for refining of gold in the U. S. Mint.

On the whole, we cannot but deem the publication of Regnault's Chemistry a valuable addition to the chemical literature of the United States, as a book which should be within reach of every chemist, and calculated to be of essential service to artists and manufacturers.

The Action of Medicines in the System ; or " On the Mode in which Therapeutic Agents Introduced into the Stomach produce their Peculiar Effects on the Animal Economy." By FREDERICK WILLIAM HEADLAND, B. A., M. R. C. S., &c. Philadelphia : Lindsay & Blakiston, 1853, pp. 560.

This monograph is a *Prize Essay*, "to which the Medical Society of London awarded the Fothergillian Gold Medal for MDCCCLII," and we feel little hesitation in saying, that it is the most thorough, masterly, and scientific exposition of the state of medical knowledge on the important topic treated, that has ever appeared. The subject to which the Essay was written is, "On the mode in which Therapeutic Agents introduced into the Stomach produce their peculiar effects on the animal economy." It is treated by the author in a series of distinct propositions, which he lays down and endeavors to demonstrate after the manner of mathematical theorems. We quote, as perhaps affording the best insight into the subject matter of the book, the author's series of *propositions* at length.

Prop. I.—That the great majority of medicines must obtain entry into the blood, or internal fluids of the body, before their action can be manifested.

Prop. II.—That the great majority of medicines are capable of solution in the gastric or intestinal secretions, and pass without material change, by a process of absorption, through the coats of the stomach and intestines, to enter the capillaries of the portal system of veins.

Prop. III.—That those medicines which are completely insoluble in water, and in the gastric and intestinal juices, cannot gain entrance into the circulation.

Prop. IV.—That some few remedial agents act locally on the mucous surface, either before absorption, or without being absorbed at all. That they are chiefly as follows:

- a. Irritant Emetics.
- b. Stomach Anæsthetics.
- c. Irritant Cathartics.

Prop. V.—That the medicine, when in the blood, must permeate the mass of the circulation, so far as may be required to reach the parts on which it tends to act.

That there are two possible exceptions to this rule:—

- a. The production of sensation or pain at a distant point.
- b. The production of muscular contraction at a distant point.

Prop. VI.—That while in the blood the medicine may undergo

changes, which in some cases may, in others may not, affect its influence. That these changes may be—

- a. Of Combination.
- b. Of Reconstruction.
- c. Of Decomposition.

Prop. VII.—That a first class of medicines, called Hæmatics, act while in the blood, which they influence. That their action is permanent.

1. That of these some, called Restoratives, act by supplying, or causing to be supplied, a material wanting; and may remain in the blood.
2. That others, called Catalytics, act so as to counteract a morbid material or process; and must pass out of the body.

Prop. VIII.—That a second class of medicines, called Neurotics, act by passing from the blood to the nerves or nerve centres, which they influence. That they are transitory in action.

1. That of these some, called stimulants, act so as to exalt nervous force, in general or in particular.
2. That others called Narcotics, act so as first to exalt nervous force, and then to depress it; and have also a special influence on the intellectual part of the brain.
3. That others again, called Sedatives, act so as to depress nervous force, in general or in particular.

Prop. IX.—That a third class of medicines, called Astringents, act by passing from the blood to muscular fibre, which they excite to contraction.

Prop. X.—That a fourth class of medicines, called Eliminatives, act by passing out the blood through the glands, which they excite to the performance of their functions."

These propositions the author considers the foundation of the Essay, and in the "Superstructure" which he has raised upon them, he has, in our opinion, most fully made good his claim of having "stated about as much of the general principles by which medicines operate as seems to be capable of distinct proof."

The classification adopted, is based upon an exclusion of external or topical agents, among which, we presume, the author would place *Anthelmintics*.

He arranges medicines into "four great groups, the action of each of which is well marked and distinct. The first class acts in the blood; and as a large number of diseases depends on a fault in that fluid, we may by their means be enabled to remedy that fault. They are the most important of all medicines. They are called Hæmatics, or blood medicines. They are used chiefly in chronic and constitutional disorders. But a second class of remedies are temporary in their action. They influence the nervous system, exciting it, depressing it, or otherwise altering its tone. They are chiefly useful in the temporary emergencies of acute disorders. They can seldom effect a permanent cure, unless when

the contingency in which they are administered is also of a temporary nature. They are called Neurotics, or nerve-medicines. A third set of medicines, less extensive and less important than the others, acts upon muscular fibre, which is caused by them to contract. Involuntary muscular fibre exists in the coats of small blood-vessels, and in the ducts of glands. Thus Astringents, as these agents are called, are able, by contracting muscular fibre, and thus diminishing the calibre of these canals, to arrest hæmorrhage in one case (when a small vessel is ruptured) and to prevent the outpouring of a secretion in another case.

The fourth class is of considerable importance. Some medicines have the power of increasing the secretions which are formed from the blood by various glands at different parts of the body. By their aid we may be enabled to eliminate from the blood a morbid material through the glands; or we may do great good by restoring a secretion when unnaturally suppressed. They are called Eliminatives. Like Hæmatics, their influence is more or less permanent. That of Neurotics and Astringents, particularly the former, is transient."

In allusion to this classification we may be perhaps allowed to say, that it coincides in its great divisions with one adopted in a little work by one of the editors of this journal, with the single exception of the assignment of *Astringents* to an independent class.

Our limits of course forbid a critical analysis of the various subdivisions or orders, into which these principal groups are broken up. Many novel, striking, and ingenious views are presented in the examination of these minor divisions and of some of the more important of the individual articles of the *Materia Medica*. These theories the author modestly admits to be "the weak points of the Essay."

But in thus boldly venturing upon a path of exploration from which medical inquiry has so long shrunk with unaccountable timidity, Dr. Headland has done good service. For, certainly, in no branch of medicine is there now the same field for progress as in the advancement of our knowledge of the action of medicines, and of their operation in the cure of disease. Is it not, indeed, surprising, that with the rapid perfection of pathology and diagnosis which has been accomplished within a few years past, so little should have been done to rescue Therapeutics from the doubt and uncertainty with which it has been so long connected!

THE MEDICAL EXAMINER.

—
PHILADELPHIA, JULY, 1853.
~~~~~

## PHYSICIANS FOR EMIGRANT SHIPS.

We were glad to meet with the following article in the editorial columns of the Pennsylvania Inquirer of this city. The importance of the matter commends it to all classes of the community, and we are rejoiced to see at least one of the daily papers independent enough to urge a course which, although attended with expense to shippers, must greatly advance the cause of humanity.

PHYSICIANS FOR EMIGRANT SHIPS—A GOOD SUGGESTION.—We perceive, upon looking over the Report of the Committee appointed by the American Medical Association, to memorialize Congress in favor of a law requiring every emigrant ship to have a surgeon on board, that the subject will be taken up at the coming session. It is to be hoped that the proposition will then be approved. The introduction of surgeons into all emigrant vessels, would be the means of saving many lives, while the towns and cities where emigrants are landed, would thus be largely protected against the small-pox, ship fever, and other fearful diseases. The voice of humanity is in favor of such a measure, whether we allude to the poor emigrant from abroad, or the citizen at home. It is little less than murder to fill a ship with emigrants, and thus to foment disease and promote death. The thanks of the country are due to the American Association for its energetic efforts on this interesting subject. We are all, more or less, vitally concerned in the application. The Physician on ship-board would combat the disease every inch of the way across the ocean, and by strict attention, diet, medicine and purification, would do much towards fitting the vessel to approach towards the healthy shores of the Republic. The ship fever is a dangerous disease. It requires much heroism to face, brave, and contend with it. No physician can *desire* such practice, and hence it is nothing but a conscientious sense of right and duty, that will induce a member of the medical profession to live among such patients, at sea or on land. But this sense of duty everywhere prevails, and it is an honor to the calling and to human nature. There is also another reason why such vessels as we have referred to should have surgeons. It is this: By close and constant attention to the multitude of cases that occur in crowded vessels, the physician would daily become more and more acquainted with the best mode of successfully treating ship fever, and thus of saving human life. How many medical gentlemen have already been carried off by this disease? It is, therefore, vastly important that it should be seen in all its phases, and then eventually it could and would be mastered just as certainly as our physicians now cure the intermittent fever.

The following handsome tribute to the medical profession appeared in the same paper shortly after the above, for which the author justly deserves, and should receive their warmest thanks :

PHYSICIANS—THEIR DUTIES AND THEIR LABORS.—We recently gave some extracts from the last Annual Report of the Medical Society of Pennsylvania—one of the most enlightened and benevolent bodies of the day. Our object was to show with what commendable zeal the members of the Medical Profession were laboring in the cause of humanity. All their efforts tend to the health and happiness of our race. What a vast volume of knowledge do they open up, for the examination and consideration of the intellectual and gifted in all parts of the world !

The Doctor is not only a prescriber for the sick or wounded, but he is a Botanist, a Chemist, a Geologist and Mineralogist—aye, everything. There is no *leaf* in any book of science, that he does not carefully study, with the view of bringing to the bedside of his patients something that can aid him in curing disease.

The Medical Profession is emphatically the *learned* profession. Nor do its members become weary in well doing. Every year they assemble in some of our large cities, to compare notes with one another, and to discuss what has been discovered within the preceding year. What able Reports are there made and distributed throughout the nation !

The annual publications of the American Medical Convention teem with profound intelligence upon the improvement and advances in their great art. Nor do they ask any pecuniary assistance from the other classes of society to meet their expenses in journeying to or remaining at their intellectual gatherings.

These are not the ordinary conventions of the day. They meet for the noblest and best of purposes—to smooth the pathway of man through this stormy wilderness of life. Like their great Master, who went abroad healing the sick and cleansing the lepers, they are endeavoring to walk in his benevolent footsteps. And when the last summons must come, how often are they the only persons capable of giving consolation to the dying, as the soul takes its departure from its clay tenement, and wings its way to immortality !

What vast interests are committed to their hands ! and we think we may say right justly—for we know of no body of men who peril more in the cause of humanity. Pestilence cannot scare them, nor does squalid poverty pass neglected by them. We have all seen them take their lives in their hands, in performing the high duties committed to their trust. We may well say, therefore, that we most sincerely thank the members of that noble profession for their constant study to advance the science they so eminently honor. Their Conventions are, in truth and in fact, Conventions *for* us, for the elevation of suffering humanity, for we all belong to that vast brotherhood.

---

DR. E. BROWN-SEQUARD.

This distinguished physiologist leaves the United States, to return to Paris, on the 30th of July. We are desired to announce that he will



take charge of and transmit any books, pamphlets or communications for the "*Société de Biologie*" of Paris. His address is No. 17 University Place, New York.

He will carry with him the best wishes of the many friends whom he has made during his residence in this country.

### MEDICAL NEWS.

#### MEDICAL GRADUATES IN 1853.

|                                                            |     |
|------------------------------------------------------------|-----|
| Jefferson Medical College, . . . .                         | 223 |
| University of Pennsylvania, . . . .                        | 160 |
| University of Maryland, . . . .                            | 60  |
| Kentucky Medical School, . . . .                           | 39  |
| Medical Department of Yale College, . . . .                | 15  |
| Medical Department of Pennsylvania College, . . . .        | 56  |
| Medical School of Harvard University, . . . .              | 17  |
| Starling Medical College, . . . .                          | 42  |
| College of Physicians and Surgeons, N. Y., . . . .         | 53  |
| Medical College of Georgia, . . . .                        | 50  |
| Medical Department of the St. Louis University, . . . .    | 33  |
| Medical Department of the University of Missouri, . . . .  | 26  |
| Philadelphia Medical College, . . . .                      | 27  |
| University of Nashville, Tenn., . . . .                    | 36  |
| Medical Department of Hampden Sydney College, Va., . . . . | 26  |
| University of Louisville, . . . .                          | 87  |

QUACKERY IN PARIS.—A case of some interest came the other day before the Correctional Tribunal. A medical man, named De Bonnard, was cited for acting illegally in administering to his patients medical preparations of a composition not set down in the codex. It appeared from the evidence, that in consequence of information given to the police, a search was made in December at the residence of Dr. de Bonnard, and a small box was seized there containing 160 little glass bottles of various medicaments, and 1350 little glass tubes filled with white globules. The object of these preparations was to enable the medical man to administer his remedy to the patient on the instant. An analysis has proved that these preparations were not in accordance with anything set down in the codex, and in consequence Dr. de Bonnard was accused of practising medicine in an illegal manner, and of selling secret reme-

dies. The court decided that there was nothing to prove the latter count of the charge, but that there could be no doubt as to the former. Dr. de Bonnard was then sentenced to pay a fine of 100 francs.—*Dublin Med. Press*, from *Galignani's Journal*.

LIST OF DELEGATES IN ATTENDANCE, AT THE MEETING OF THE AMERICAN ASSOCIATION,

*Held in N. York, 3d, 4th and 5th May, 1853.*

\* Killed by the catastrophe at Norwalk.

*Maine.*—John Benson, Chas. S. D. Fessenden, Alonzo Garcelon, Isaac Lincoln, James McKean, E. R. Peaslee, T. G. Stockbridge.

*New Hampshire.*—\*Josiah Bartlett, Dixie Crosby, Josiah Crosby, G. W. Garland, Luther M. Knight, Alvah Moulton, Edw. H. Parker, E. R. Peaslee, Nath. Sanborne, A. Smalley, Albert Smith, W. P. Stone, E. K. Webster.

*Vermont.*—Chas. L. Allen, H. B. Brown, E. S. Carr, C. H. Cleveland, Earl Cushman, C. L. Ford, Selim Newell, A. T. Woodward.

*Massachusetts.*—Nathan Adams, Z. B. Adams, Ebenezer Alden, Nathan Allen, John B. Alley, George Bartlett, Lyman Bartlett, Jonas W. Bemis, Henry G. Bigelow, J. Nelson Borland, Thos. R. Boutelle, H. I. Bowditch, Jonathan Brown, Charles H. Browne, S. G. Burnap, Ephraim Buck, E. W. Carpenter, Thos. L. Chapman, George Choate, Henry G. Clark, Moses Clark, Daniel T. Coit, Clarkson T. Collins, Charles A. Davis, Lemuel Dickerman, Hanover Dickey, Wm. Dickinson, Calvin Ellis, J. Farnum, Samuel A. Fisk, Calvin T. Fiske, Edward Flint, Geo. H. Gay, Augustus A. Gould, \*James H. Gray, John Green, Robert Greer, Benj. F. Heywood, Alfred Hitchcock, C. C. Holmes, O. W. Holmes, Charles D. Homans, R. W. Hooper, Daniel Hovey, Charles F. Jackson, John Jeffries, J. P. Jewett, N. C. Keep, Gilman Kimball, Wm. D. Lamb, Erasmus D. Miller, Josiah Noyes, James M. Nye, J. W. D. Osgood, Thaddeus Phelps, \*A. L. Peirson, Edward Reynolds, Samuel Richardson, Ira Sampson, Augustine Shurtleff, Benj. F. Smith, \*James M. Smith, Seth L. Sprague, Henry O. Stone, D. H. Storer, Daniel Thompson, S. D. Townsend, E. G. Tucker, Charles E. Ware, J. C. Warren, J. M. Warren, Moses W. Weld, Wm. G. Wheeler, Vassel White, Wm. C. Whitmilge, Adams Wiley, H. W. Williams, Edward Worcester, Wm. Workman.

*Rhode Island.*—Hiram Allen, S. Augustus Arnold, Richmond Brownell, George Capron, Sylvanus Clapp, Hiram Cleveland, Theophilus C. Dunn, Ezekiel Fowler, David King, Lewis L. Miller, I. Maurant, Charles W. Parsons, Usher Parsons, Henry W. Rivers, Edwin M. Snow.

*Connecticut.*—Rufus Baker, A. W. Barrows, \*Samuel Beach, Sheldon Beardsley, L. N. Beardsley, H. N. Bennett, S. C. Beresford, E. H. Bishop, G. G. Bissel, D. E. Bostwick, Henry Bronson, Clarence M. Brownell, Wm. B. Casey, B. H. Caslin, Andrew Castle, Samuel Catlin, Jr., F. L. Dickinson, Johnson C. Hatch, Roswell Hawley, Charles Hooker,



Worthington Hooker, Robt. Hubbard, Samuel Hutchings, A. M. Huxby, Nathan B. Ives, P. A. Jewett, Jonathan Knight, Elijah Middlebrook, A. Moody, Nathan P. Pike, Gurdon W. Russel, F. W. Shepard, Alvan Talcott, \*Archibald Welch, Benjamin Welch, R. A. White, Datus Williams, Orson Wood, William Wood, Ashbel Woodward, S. Woodruff.

*New York.*—John G. Adams, Lucius H. Allen, James Anderson, James H. Armsby, John H. Arnold, David F. Atwater, James M. Austin, Daniel Ayres, M. N. Babcock, John Ball, B. Fordyce Barker, J. P. Batchelder, William Bay, E. L. Beadle, Wm. H. Beardsley, Seneca Beebe, A. G. Bigelow, Wm. N. Blakeman, Thos. W. Blatchford, James C. Bliss, S. V. R. Bogert, Jackson Bolton, Reed B. Bontecou, J. H. Borrowe, Sumner Ely, John T. Ferguson, Austin Flint, C. L. Ford, Joel Foster, S. Consant Foster, John W. Francis, A. K. Gardner, J. P. Garrish, Anthony Gescheidt, C. R. Gilman, Caleb Green, Horace Green, Isaac Greene, John H. Griscom, F. H. Hamilton, Elisha Harris, John Hart, Charles Henschell, James Hibben, Richard K. Hoffman, S. T. Hubbard, Frederick Hyde, Ferris Jacobs, Charles G. Pomeroy, James O. Pond, Alfred C. Post, J. Purdy, S. A. Purdy, S. S. Purple, C. H. Raymond, D. M. Reese, J. H. Reynolds, T. B. Reynolds, Wm. Rockwell, L. A. Sayre, A. L. Saunders, Earnest Schilling, Albert Smith, Charles D. Smith, Joseph M. Smith, Horatio S. Smith, Stephen Smith, Simeon Snow, Thomas Spencer, J. S. Sprague, B. P. Staats, F. Campbell Stewart, Thomas C. Brinsmade, P. B. Brooks, Gurdon Buck, Wm. P. Buel, Henry D. Bulkley, Wm. C. Butler, George N. Burwell, G. P. Camman, J. M. Carnochan, Edson Carr, Galen Carter, Jonathan H. Case, M. H. Cash, John C. Cheesman, H. S. Chubbuck, Wm. Henry Church, J. W. G. Clements, Thomas Cock, Thomas F. Cock, James Cockroft, A. B. Coe, James S. Cooper, John W. Corson, C. B. Coventry, Henry G. Cox, Richard O. Crandall, John C. Dalton, Jr., E. H. Davis, Edward Delafield, William Detmold, D. B. Devendorf, A. F. Doolittle, Henry S. Downs, Abram Dubois, \*Wm. C. Dwight, Pliny Earle, H. N. Eastman, Wm. H. Jackson, J. Foster Jenkins, Harvey Jewett, F. U. Johnston, David T. Jones, Stephen S. Keene, R. S. Kissam, Jonathan S. Lawrence, B. C. Leveridge, Jared Linsly, John McCall, B. W. McCready, Ebenezer McFarlan, W. H. Macneven, James McNaughton, Leonard C. McPhail, Alden March, T. M. Markoe, Wm. H. Maxwell, John T. Metcalfe, John Miller, S. R. Millington, J. M. Minor, Henry Mitchell, R. C. Morris, Valentine Mott, Walter Mott, Peter Moulton, E. S. Nichols, Eugene O'Donoughue, Benjamin Ogden, Samuel J. Osborn, Andrew Otterson, Willard Parker, George A. Peters, James L. Phelps, S. B. Phillips, James Stewart, Philander Stewart, Alex. H. Stevens, Mark Stephenson, John O. Stone, John A. Swett, John Swinburne, Isaac E. Taylor, William Taylor, Alex. Thompson, A. G. Thompson, John Trenor, Henry Van Arsdale, Wm. H. Van Buren, Peter Van Buren, Sam. O. Vanderpoel, J. R. Van Fleck, M. D. Van Pelt, James Warren, John Watson, Robert Watts, Cyrus Weeks, H. S. West, Lewis C. Wheeler, James P. White, Devillo White, Oliver White, S. P. White, Charles H. Wilcox, Augustus Willard, Nelson

Winton, Isaac Wood, James R. Wood, Geo. F. Woodward, Joseph Worster.

*New Jersey.*—B. Rush Bateman, P. T. Brakely, A. E. Budd, Charles Butcher, S. W. Butler, J. W. Canfield, G. R. Chetwood, Henry J. Clark, L. Condict, Charles Cook, J. M. Cornelison, J. W. Craig, Alex. N. Dougherty, Franklin Gauntt, John Grimes, John B. Johnes, Samuel Lily, A. Linn, S. R. Millington, A. D. Morford, J. B. Munn, Sam'l H. Pennington, W. Pierson, John H. Phillips, Alex. W. Rogers, L. A. Smith, Othniel H. Taylor, Theodore R. Varick, A. F. Voorhies, John F. Ward.

*Pennsylvania.*—J. M. Allen, William Ashmead, John L. Atlee, Thomas F. Betton, C. H. Bibighaus, John B. Biddle, B. Bohren, Henry Bond, John B. Brinton, James Bryan, F. S. Burrows, Henry Carpenter, James S. Carpenter, J. Carson, P. Cassidy, Benj. H. Coates, D. F. Condie, Hiram Corson, M. R. Cryder, J. Augustus Ehler, Thomas Ellmaker, G. Emerson, Joseph P. Gazzam, Alex. K. Gaston, Traill Green, Edward Hartshorne, Isaac Hayes, Anthony Heger, Frank M. Heister, Charles Innes, Wilson Jewell, (Prof.) Samuel Jackson, Wm. V. Keating, William Keith, Alfred S. Kennedy, James W. Kerr, J. F. Lamb, R. La Roche, E. F. Leake, R. J. Levis, John Lowman, J. K. Mason, William Maybury, Charles D. Meigs, John K. Mitchell, S. N. Ogier, Joseph Pancoast, C. W. Parrish, Wm. A. Piper, John Ream, C. O. Richards, R. E. Rogers, W. S. W. Ruschenberger, John J. Reese, Francis R. Shunk, Francis Gurney Smith, Henry H. Smith, Robert K. Smith, Thomas Spencer, Alfred Stille, Moreton Stille, J. B. Stubbs, Isaac Thomas, R. H. Townsend, W. A. Van Buskirk, Isaac R. Walker, Francis West, G. W. Winley, Caspar Wister, Thomas H. Yardley, J. L. Ziegler, George J. Ziegler,

*Delaware.*—H. F. Askew, James Couper, J. F. Wilson.

*Maryland.*—Thomas E. Bond, Jr., C. C. Cox, Francis Donaldson, E. P. Duval, Washington Duval, John R. W. Dunbar, Henry T. Goldsborough, E. M. Harcastle, F. E. B. Hentze, Joel Hopkins, P. S. Kinnernon, G. W. Miltenberger, James Wynne, Robert Murray, D. A. O'Donnell, Wm. Riley, Joseph Roby, J. E. Snodgrass, Samuel Tyler.

*District of Columbia.*—S. C. Bersey, G. M. Dove, W. L. C. Du Hamel, Samuel W. Everett, Alex. T. B. Garnett, Harvey Lindsly, A. J. Semmes, John Fred. May, Thomas Miller, James E. Morgan.

*Virginia.*—Thomas P. Atkinson, James Bolton, John Dove, P. Claiborne Gooch, Theodore Goodloe, Carter P. Johnson, Charles R. Kemper, George A. Otis, C. R. Palmore, Wm. W. Parker, Alban S. Payne, J. F. Peebles, F. W. Rodney, John F. Sinton, P. Trent, J. Wistar Walke, Beverly R. Wellford.

*North Carolina.*—J. Graham Tull, N. J. Pittman,

*South Carolina.*—R. S. Bailey, B. W. Bradley, D. J. Cain, Dan. G. Crane, Joseph S. Crane, Henry R. Frost, Peter C. Gaillard, R. A. Kinloch, Robert Lebby, John May, Middleton Michael, James Moultrie, T. L. Ogler, Thomas G. Prioleau, Wm. T. Wragg.

*Georgia.*—Wm. Gaston Bullock, Henry F. Campbell, Thomas Hoey, G. M. Kollock.



*Alabama.*—J. A. English, Thomas J. Howell, G. M. Meriwether, Robinson Miller.

*Louisiana.*—J. Hancock Douglas.

*Tennessee.*—Zeno Harris, J. B. Lindsley, Charles K. Winston.

*Kentucky.*—T. S. Bell, C. J. Blackburn, Joshua B. Flint, D. L. Freeman, T. J. Moore, B. Silliman, Jr., L. P. Yandell.

*Ohio.*—J. D. Cotton, Jacob J. Delamater, Thos. W. Gordon, R. L. Howard, J. P. Judkins, John A. Murphy, R. D. Mussey, C. H. Raymond, Wolcott Richards, S. Hanbury Smith, N. E. Soule, D. Tilden.

*Indiana.*—Geo. L. Andrews, Wm. A. Clapp, Vierlin Kersey, Wm. Lomax, Geo. M. Maclean, Hugh Ronalds, C. Landon Rose, Joseph Somes, R. R. Town.

*Illinois.*—Daniel Brainard, N. S. Davis, Joseph C. Frye, Adams Nichols, A. B. Palmer, Rudolphus Rouse, H. Williams.

*Missouri.*—C. W. Hempstead, J. B. Johnson, E. S. Lemoine, C. A. Pope, Jas. R. Washington.

*Michigan.*—Josiah Andrews, F. K. Bailey, Aaron L. Leland, Isaac Paddock, T. Pitcher, Henry Taylor.

*Iowa.*—J. C. Hughes.

*Wisconsin.*—C. B. Chapman, H. Van Dusen.

*Arkansas.*—Boreland,

*California.*—R. Stephen Harris.

*Florida.*—Thos. King Leonard, Geo. W. Betton.

*U. S. Army.*—R. H. Coolidge, J. M. Cuyler, Josiah Simpson.

*U. S. Navy.*—B. F. Bache, Ninian Pinkney.

*Foreign.*—Robt. R. Kelley (from Beyroot, Syria.)

R. M. McIlvaine and N. J. Pittman (from Medical Society of Paris.)

## RECORD OF MEDICAL SCIENCE.

### PATHOLOGY AND PRACTICE OF MEDICINE.

*Treatment of Typhoid Fever in Paris.*—An epidemic of Typhoid Fever is very prevalent in Paris at present, and it is seen in all the Hospitals. In these it is quite interesting to witness the variety of treatment adopted by each physician of note, as his medical tendencies incline; that pursued respectively by MM. Bouilland, Briquet and Louis, whom I have followed, presents many points of difference, and it has been difficult to determine on which side the scale of success leans. We hope, however, to be able to send a paper by a medical friend who has watched closely the service of the former, and who can furnish some testimony with respect to his mode of employing the lancet in this disease. M. Louis very generally administers seltzer water, vinous lemonade, and adopts, to a certain extent, the expectant system. M. Briquet at La Charite pursues to me rather a middle course. He ab-

stracts blood in the early stage of some cases which seem peculiarly fitted for it. I may observe here that I also have heard M. Trousseau say, that even as late as during the second and third septenary period, he was in the habit of bleeding to prevent the increase, or destroy the congestion of the lungs which so often exhibits itself, its approach and presence being of course easily discoverable by the physical signs. M. Briquet relies with much confidence (and my own observation in his wards can sustain him) upon the application of cups and scarification to the mastoid region during delirium and coma of Typhoid. It completely checks the increase of these dangerous symptoms, as I have repeatedly witnessed. He does not give mercury internally, but applies plasters of mercurial ointment over the entire abdomen until the secretions become active, or the tongue and skin exhibits the desired moisture. This method of using the remedy might more easily reconcile itself to those who so much doubt respecting the advantages of its internal administration. He gives ordinary Bordeaux wine, during the period of convalescence. These means, thus generally expressed, are often associated in his practice with the use of ice, administered in every possible way, and through every channel—bladders filled with it are applied to the scalp, it is dissolved in the mouth and given with enemata. One of his Internes mentioned to me this morning, that he had lost but one case within three weeks. There are between twenty and fifty sick of the disease in each service of the Hospitals, and few of these fail to present gargouillement, the character rose mark and sudamina.—*Paris Correspondence Charleston Med. Journ.*, June, 1853.

*Treatment of Rheumatism by Quinia and Veratria.*—The treatment of acute Rheumatism by Quinine, commenced by M. Briquet, and to a certain extent discontinued, on account of the doubtful character of the termination of one or two cases in which large quantities were administered, has been very much revived of late, and the impression respecting it gains favor daily. I have seen M. B. give it with good effect quite often. M. Valleix employs and recommends it at La Pitié, and I hope to be able to send a paper on the subject by a gentleman who attends his *Services* and Lectures. One gramme (15 grains) is administered once or twice a day, and the patient kept partly quinized. The gravity of the usual symptoms daily decreases, and it seems not to be at all hostile to cardiac complications. M. Trousseau, in commenting upon this and expressing his favorable impression, alluded also to the expenses attending the use of this agent, accompanying it at the same time with the relation of a remarkable instance of recovery from acute articular Rheumatism, which was then in his wards. It was true, he added, that it was as yet an isolated case, but the repetition of the means used might give equally favorable results. It followed the employment of Veratrine after the method recommended by M. Daniel (?). The patient, a woman under middle age, suffered intense pain in the articulations, high fever with endocarditis exhibiting itself by a derangement of the first sound at the base of the heart—(sigmoid valves of aorta)—with a souffle prolonged into the large vessels, and accompanied with an



alteration in the left ventricle also. In sixty-two hours she was absolutely cured, leaving not the slightest trace of febrile excitement, the presence of a slight souffle alone remains. One half of a milligramme (about 1-10th of a grain?) was given in the form of pill, each day increasing the quantity, and, when the pains were relieved, continuing it in the same dose every second day. Its influence on the circulation in this case was prodigious, to use M. Trousseau's expression; the pulse fell to 42, and when I heard of the patient two days after, it was still at this reduced rate. Veratrine, we are aware, is one of the active principles of colchicum, and it is, therefore, not surprising that it should possess some power in acute Rheumatism, more particularly in those dependent upon the arthritic diathesis, gout, etc.—*Ibid.*

*Case of Severe Chorea.* By DR. BARCLAY, Medical Registrar to St. George's Hospital.—A very severe case of this disease has just been brought to a successful termination, some few particulars of which may be found worthy a place in the *Medical Times and Gazette*. For some days the issue in life or in death was exceedingly doubtful; and the means employed, with beneficial results, being somewhat unusual in the treatment of this disease, available suggestions may be derived from their detail to guide others in the management of similar instances.

The two principal remedies used at the time when the disease took a favourable turn, and to which we are, therefore, disposed to look as those by which its progress was checked, were the inhalation of chloroform and the employment of large suppositories of quinine. The former agent now holds the first place in temporarily allaying nervous irritability and suspending muscular action; but its effects are also not merely temporary; sleep commonly follows on recovery from the immediate stupefaction; and in how many instances may not the physician say, "if he sleep he shall do well!" But it is not the troubled dream of narcotism or *quasi*-intoxication that fulfils the function of "Nature's soft nurse." If natural sleep does not follow on the cessation of the artificial dose,—if the drug, whatever it may be, does not serve merely as the first provocative of a "balmy sleep," which is prolonged without artificial aid, the object of the physician will be frustrated, and the patient will awake unrefreshed by his slumbers, and, perhaps, not uninjured by the congestion of the brain which always attends in greater or less degree the action of narcotics. On this circumstance depends the very varying success which has attended the use of chloroform in states of extreme nervous irritability—mania, delirium tremens, and chorea; in each of which it has been employed at times with apparent advantage, while at others its effect has been null, or even, perhaps, pernicious. It is true that, as its effects are more transient, at the same time that they are more decided than those of any other narcotic, it may be ventured on in those doubtful cases bordering on inflammation, where, in all probability, a certain degree of congestion already exists, and where we should not feel justified in giving opium or even morphia experimentally, and, therefore, there is less limit to the cases in which its effects may be tried; yet while we know that we can for a time allay pain, annul consciousness,

and calm irritability, we cannot be certain that we shall succeed in obtaining a natural sleep, and, therefore, can be by no means certain, even when no congestion exists, that its action will be curative.

Along with the calm of the narcotic, and, in fact, to give full force to its action, it was necessary to support the system, and restore its exhausted energies, by the administration of a tonic. Large doses of quinine have of late been so frequently given, with alleged benefit in some instances, and apparently without prejudice in all, that nothing need be said except with reference to the mode of administration, which was here in the form of suppository: tonics and sedatives, taken into the stomach, had failed of quieting, and restoring disordered function; and, in such cases, it always demands consideration, whether perverted assimilation may not prevent their entering the circulation in such a manner as to produce their normal effects on the system. Dr. Wilson is constantly in the habit of noticing this circumstance in the depraved states of stomach of habitual drunkards, and attempting to reach the nervous system by another channel, which may not offer the same obstruction to its absorption. With this view, opium, in the form of suppository, is frequently ordered in delirium tremens with the best effects.

The consideration, too, of the absence of the menstrual flux, the evidence of periodical congestion of the generative organs, was not without its importance in determining this application of the remedy. The catamenia had been regular up to that time, and the decided exacerbations of the symptoms occurred just when their return was expected. Two or three days had passed without any appearance of the sort, and the symptoms were gradually increasing in severity when this remedy was employed. It may be remarked, however, that, up to the period of her convalescence, the function was not restored.

Susan H—, aged 16, was admitted into St. George's Hospital, under the care of Dr. Wilson, on February 23, 1853. She had been in service, and had been much worried by illness in the house, and over-work. No other cause was known for the occurrence of the symptoms of chorea, which had been gradually supervening during a fortnight or three weeks before her admission. She had had no rheumatism, and the heart was healthy. When received into the hospital, the spasmodic movements were not by any means violent, nor very constant; but there was great distortion of feature, especially when she attempted to speak. She was ordered a strong purgative, and then directed to have six minims of Fowler's solution in pimento water, three times a day. The bowels were rather loaded, and much inclined to be costive, and the purgative was repeated on two or three occasions. She continued taking the arsenical solution until the 11th of March, and seemed, under its influence, to be gradually becoming quieter and steadier. She was rather out of sorts that day, and the arsenic was left off for a day or two.

The spasmodic movements now began to be more frequent and severe, and she was obliged to lie in bed. The sesquioxide of iron was given in doses of two scruples three times a day without benefit. Her nights became disturbed, and she used to scream out a good deal during the day. Seclusion had rather a calming effect upon her; and the bed was



screened off from the rest of the ward, during which she used to have occasional short slumbers; but, for the most part, she was very restless; the expression of her face was rather wild, and the spasmodic movements constant and severe.

On the 17th, the bowels having been well purged, she was ordered to have a third of a grain of tartar emetic every three hours, and half a grain of acetate of morphia at night. This produced no sickness, and seemed partially to calm her; it was continued a second day, at intervals of four hours. She had no sleep that night, and was evidently no better; without being very violently tossed about, there was excessive restlessness and desire of movement; her face was much distorted, and the expression wild, and almost maniacal; and, as she sat upon her bed, with her legs drawn up under her, and her hair in wild confusion about her face, she looked much more like a proper inmate for Bedlam, than a person suffering simply from chorea, and the more so, because of her constant cries; but the nurse satisfied herself that she was free from delirium, and perfectly conscious on all occasions.

She had now passed the catamenial period, with no return of the menstrual flux. Her nights were sleepless, and a quarter of a grain of morphia was given every three hours to six times, but without benefit. She seemed to be gradually becoming exhausted by the constant jactitation and want of sleep. Wine had been given; yet the tongue was becoming dry and brown, the lips covered with sordes, and the pulse quick and feeble. Her aspect was distressed, and she was tossed about very violently by the spasmodic movements of the disorder.

On the 21st she was directed to inhale chloroform, and to have a suppository, with two grains of opium at once, and a draught with four grains of camphor, and some chloric ether every two hours. The first inhalation quieted her, but she awoke almost immediately after the first effects had passed off; it was not repeated till night, and, in the mean time, eight grains of quinine in suppository were ordered every hour for six times. She had some sleep after the second inhalation, and it was repeated the following forenoon. She was decidedly quieter, and the draughts and the suppositories, which had not been all given with perfect exactness, although very frequently during the night, were continued at intervals of four hours. The chloroform inhalation was again repeated on the evening of the 22d. She slept pretty well after it through the night, and fell asleep naturally next morning, waking up to have her dinner, and almost immediately going to sleep again, and continuing to dose all day. From this time she continued to improve rapidly. She was still a little odd-looking in the face, and restless jactitations lasted for some time; but she gradually became steadier. On the 4th April she was ordered Griffith's mixture, and on the 15th was discharged recovered.—*London Medical Times and Gazette.*

---

*External application of Ice in Typhus.* By Dr. SANDRAS.—The practice consists in the following proceeding:—The abdomen alone is covered with ice, when tympanitis, heat of skin, pain in the abdomen on pressure, and attacks of colic, constitute the chief symptoms. Ice

is mixed with linseed-meal, which absorbs the water, and is renewed at frequent intervals in the beginning, when the thawing goes on too quickly from the heat of skin; the application is repeated every quarter of an hour, or even oftener, but less frequently as the heat and fever diminish. First the tympanitis vanishes; then the pain and fever. In hæmorrhages, during typhus, there is no better remedy than ice. Should congestion of the head and stupor supervene, then ice must be applied in a caoutchouc bag to the scalp.—*Med. Times and Gaz.* from *Gaz. des Hop.*, 13, 1853.

*Complete Closure of the Pulmonary Artery.—Cyanosis.*—DR. HARE presented a specimen of this malformation, taken from a child who died at the age of nine months. During life, the limbs were colder than natural and of a dusky hue. Whenever the child coughed, or was moved much, he became distinctly blue. There was nothing unusual in the conformation of the chest, but close to the left nipple a purring tremor was detected, and at the apex of the heart a moderately loud systolic blowing murmur was audible. A *post-mortem* examination was made twenty-seven hours after death. There were about two drachms of fluid in the pericardium. The right auricle was much dilated and filled with blood. The foramen ovale was patulous, but extremely small. On cutting into the right ventricle, it was found that the *carneæ columnæ* were fused almost into one mass, so that this part of the right side of the heart was nearly solid. Towards the base of the ventricle, rudiments of the tricuspid valves were discernible, hanging into a cavity no larger than a moderate-sized pea. The pulmonary artery measured rather more than an inch in circumference at its middle, but the ventricular extremity terminated in a cul de sac, where there were some minute folds, probably rudiments of the pulmonary valves. At its upper extremity the vessel communicated with the aorta in the ductus arteriosus, the orifice of which was capable of admitting a crow-quill. The right and left pulmonary arteries were given off from the main trunk as usual. The left auricle was somewhat contracted, but the remaining structures of the heart were in their normal state. Dr. Hare remarked, that although instances of complete closure of the pulmonary artery were not rare, yet he thought the present specimen was almost unique, as exhibiting so contracted a foramen ovale in conjunction with that malformation.—*Lond. Med. Times and Gazette.*

*On the Application of Gutta Percha in the Treatment of Diseases of the Skin.* By ROBERT I. GRAVES, M. D., F. R. S.—Dr. Graves directs the attention of practitioners, in the treatment of certain forms of cutaneous disorder, to the necessity of protecting the abraded and tender surface of the skin, the *cutis vera*, from the contact and action of the air and other hurtful agents. The effect of blood coagulating over a cut or abraded surface is known to be beneficial, and not less serviceable are those secretions which are furnished by surfaces abraded and in a state of inflammation. The premature and forcible removal of all these discharges, which are to be regarded as natural coverings, is



always injurious, and tends to continue inflammation and irritation, and consequently to defer healing and protract the disease.

Dr. Graves thinks that artificial substitutes for these secreted coverings, or artificial coverings over them, may be useful in effecting the healing of extensively abraded surfaces in cutaneous disorders. Of this nature are solutions of collodion, which have been in occasional use for some time; and more recently solutions of gutta percha in chloroform have been employed with similar beneficial results.

It is well known that there are certain obstinate forms of cutaneous disorder, in which, whether from the nature of the disorder, or the extent of skin abraded, denuded, and irritated, it is often difficult to effect either cure or alleviation. Such are some forms of psoriasis, eczema, impetigo, and leprosy. In treating affections of this kind, a covering of gutta percha seemed to Dr. Graves well calculated to protect the tender surface, and thereby to promote the healing process. After various trials with this agent, the results have been such, that Dr. Graves conceives that they ought to be well known. The therapeutic application of gutta percha is mentioned by Dr. Neligan in his recent work. But it may be useful here to give some notice of the method from the account by Dr. Graves himself.

When the saturated solution of gutta percha in chloroform is spread by means of a camel's hair pencil over a portion of the skin, the solvent fluid rapidly evaporates, leaving a delicate and extremely thin pellicle of gutta percha firmly adhering to the part. The peculiar toughness of gutta percha prevents this pellicle from being brittle, and therefore it is much less liable than collodion to crack and fall off in small scales. On the forehead or face, where it is not affected by friction of the clothes, it remains firmly attached for five or six days, or even longer; but on other portions of the surface it is often rubbed off much sooner. Over dry eruptions of the skin it lasts longer than over those which are moist, and over smooth and firm spots, of course, longer than over those covered with rough morbid scales or loosely adhering crusts. Before the application of this solution, therefore, the practitioner will do well to render the portions of the cutaneous disease to which he intends to apply it, as free as possible from crusts or scales, by means of poultices, alkaline lotions, &c. When the precaution is taken, he will find that the artificial cuticle which he has applied with his brush will in certain cases act most sensibly on the subjacent disease, diminishing inflammation and its consequences, and powerfully contributing to the restoration of the healthy structure of the skin.

Whether it acts by the equable pressure which the film of gutta percha, suddenly coagulated from the fluid state, must exert on the surface to which it becomes so firmly adherent, or whether its efficacy be rather owing to other causes, it is beside the object of Dr. Graves in writing this notice to discuss. He remarks, however, that the curative properties of such an artificial covering are not confined to the skin; for, in the "*Gazette Medicale de Paris*" (April 10, 1852), is an account of the successful application, by M. Dechange, of collodion in orchitis; and the *modus operandi* is said by him to consist in its compressing the

tissues, and protecting the parts from the action of the air, which he thinks is a powerful element of phlegmasia. Without giving an unqualified assent to this explanation, Dr. Graves has no hesitation in announcing his firm conviction, that, in diseases of the skin, this solution furnishes us with a new and active remedy, exerting effects quite different from those produced by any topical application hitherto in use.

The transparency of this artificial membrane enables the surgeon to watch the progress of the subjacent diseased skin, and its colorless nature prevents it from disfiguring the face when the eruption occupies that part. Its perfect cleanliness, too, is no small advantage, and affords a very agreeable contrast when compared with the usual ointments, &c.

The observations of Dr. Graves confirm what reasoning on this subject would lead us to expect, that this application is more suited for dry, scaly, tubercular, and chronic diseases of the skin than for acute affections attended with much oozing of fluid and comparatively active inflammation.

Still, its good effects are by no means limited to chronic diseases of the skin, or those of a scaly, dry nature; for, as will hereafter appear, Dr. Graves has seen it decidedly useful in the spreading form of impetigo. His experience of this remedy makes him anxious to witness its application in the first stages of erysipelas, as analogy leads him to hope for good results in such cases.

Of course the patient must aid the efforts of the physician, and must, as far as possible, abstain from every thing which tends to rub off or injure the artificial cuticle; for its virtue ceases when its continuity is broken and the external air finds admission to any part of the diseased surface.

Early in the month of November, 1851, Dr. Graves was called to visit Mrs. C., from ———. She was about fifty years old, full and plethoric; the mother of a large family, and, until the disease of which she then complained, commenced, generally healthy. About two years before, she observed small spots of impetigo on her limbs and body, which succeeded each other, some healing while fresh ones appeared. During summer she was nearly free from them, but last autumn they returned with greater virulence than ever, and have since increased both in size and numbers, some being larger than the hand, and attended with constant oozing of fluid, which imperfectly coagulates, forming loose and thin crusts. The itching at night was intolerable, and nearly deprived her altogether of sleep. Dr. Graves employed the usual general and topical treatment for a fortnight without alleviation of her sufferings, when he thought of trying the saturated solution of gutta percha in chloroform, and had it carefully applied by Mr. Nicholls of Dawson Street, at first by way of trial, to one of the smaller spots, and on the following days to each of the larger patches of eruption in succession. The relief obtained was such that it appeared almost incredible, both to the patient and her family. Her cure was accomplished in less than three weeks; for, dreading the sudden stopping of so great a discharge and so much cutaneous irritation, he proceeded cautiously, and towards



the end of the cure, when she returned home, he directed an issue to be inserted in her arm, as a measure of precaution. She has continued well up to the present time (11th April, 1852).

In this patient the attendants were at first obliged to re-apply the gutta percha every second day, as it was rapidly detached and broken up into large flakes by the discharge from the subjacent surface. Its healing influence, however, speedily diminished the diseased secretion, and then, the artificial cuticle remained longer adherent, and it was not necessary so often to use the scissors for the purpose of cutting off the loose portions of gutta percha membrane previously to applying a fresh layer. The camel's hair brush should be plunged, the moment it has been used, into hot water, to prevent it from being consolidated by the coagulated gutta percha.

This case caused a great sensation among the patient's friends and relatives, and many were the inquiries made relative to the method of cure employed. Dr. Graves confesses that his own astonishment at the result was not less than theirs.

Since that time Dr. Graves has repeatedly used this application in *acne of the face*, in which disease each of the pimples should be covered with the solution, and the patient enjoined not to rub off the pellicle by washing, &c.

In some this treatment alone causes a material and rapid diminution of this tormenting eruption, and by perseverance in this plan, there is every appearance in two of his patients that the tendency to throw out the pimples is gradually ceasing.

Finally, in several cases of psoriasis Dr. Graves applied this solution with great benefit. In this disease much care must be taken to prevent the application being rubbed off by the clothes, and no woollen stockings or rough garment of any sort should be allowed next the skin. I had the satisfaction of curing in a fortnight a chronic psoriasis of the back of the hands and arms in a lady who had been under homœopathic treatment for six months without deriving the least advantage from the infinitesimal doses prescribed by the practitioner.

Since the preceding observations were written, Dr. Graves received the following note from Mr. Moore. The additional information concerning the effects produced by the application of collodion strongly verifies the observations respecting the local antiphlogistic action of a gutta percha pellicle:

"M. La Tour has for some time advocated the doctrine that external inflammation may be speedily subdued by withdrawing the affected surface from the influence of the air. This he effects simply by a layer of collodion, which, he says, rapidly assuages the inflammation of gout and articular rheumatism. At the meeting of the Academy of Medicine, on the 8th of February, M. La Tour related a case of peritonitis in which the symptoms were dissipated within twenty-four hours, by the application of a layer of collodion to the whole surface of the abdomen."

POSTSCRIPT, June 7, 1852.

My anticipation respecting the utility of an artificial cuticle applied over the parts affected by commencing erysipelas, has, I find, been veri-

fied, as appears from the following paragraph taken from Dr. Neligan's able Treatise on Diseases of the skin :

"Acting as an impermeable varnish, and probably producing some effect, also, by the compression it causes, collodion has been successfully employed by Spengler and Rapp, as a local application in erysipelas. The parts are thickly coated with it by means of a camel's hair pencil and it is renewed as often as may be required in consequence of its cracking and peeling off when dry."

When Dr. Stokes heard of the success of Dr. Graves in other cases, he resolved to try the gutta percha solution in small-pox, and the result of two trials is most encouraging, and leads to the hope that at length a means of preventing the formation of disfiguring scars on the face in that disease has been discovered. Dr. Stokes has allowed Dr. Graves to publish the two following cases treated by him at the Meath Hospital, and noted by this clinical clerk, Mr. Robert P. White.

Anne Kenny, aged eighteen, was admitted into the Meath Hospital, 11th May, 1852. She was never vaccinated; her illness began on the 6th of May by rigors, headache, and pain in her loins, but without any vomiting. On the 8th, the eruption appeared, and on coming into hospital, the eruption was well formed and confluent on her face; the fever of a typhoid character, with considerable prostration of strength; she was much annoyed with pain and itching of her face. She was ordered wine and carbonate of ammonia mixture, and her face to be painted with a solution of gutta percha in chloroform.

The solution was applied with a soft brush; the entire face being well coated with it, and after an interval of a few minutes (just sufficient to allow the previous coating to dry), a second coat of the solution was applied.

This application, she said, gave her great relief, and allayed the pain and itching. On the 13th she was much better, and the solution was again applied in the same manner.

22d May. She has proceeded most favorably; all the crusts have come off the face in large pieces, and there is hardly any trace of the disease remaining except a slight discoloration. During the whole time of her illness, from the application of the solution, her face continued moist, and there was no ulceration in any place.

Catherine Sherlock, aged twelve, was admitted 13th May (seventh day of eruption). Her illness commenced by headache, pain in her loins, and rigors, but without sickness of the stomach; she was never vaccinated. On admission she had a good deal of fever of a typhoid type; the eruption had come out well, was confluent, and had completely covered her face; she complained very much of pain and itching of her face and head, which kept her from sleeping. The solution of gutta percha was applied as in the former case, and apparently gave her much relief, for she was easier afterwards, and ceased rubbing and tearing her face in the manner in which she had been doing before. Wine was also freely used as in Kenny's case.

22d May. All trace of the disease has nearly gone, the crusts coming off in large pieces, and the remaining marks of the disease being very trifling when compared with the violence of the attack.



The same effect of the solution in keeping the face moist was also observed in this case as in the preceding.

In communicating these cases, Dr. Stokes observed, as worthy of notice, and probably connected with the beneficial result produced, that the most remarkable effect of the gutta percha was to keep the face constantly moist, and to prevent the formation of hard and irritating crusts. He also mentioned a singular illustration of the effects of total exclusion of air from the cutaneous surface as a preventive of the eruption in small-pox. It was that of a man who, while in the Meath Hospital for a scrofulous enlargement of the knee-joint, was attacked with this disease; the knee had been previously tightly strapped with adhesive plaster, and on the disappearance of the eruption, it was seen, on removing the strapping, that not a single pustule had been developed on the parts which were thus covered.

It is scarcely necessary to add, that however useful solution of gutta percha in chloroform, or any other topical applications, may prove, it would be, nevertheless, absurd to expect from them a radical cure of those chronic cutaneous affections which arise from constitutional causes, whether strumous, syphilitic, or cancrroid. As well might we look for the cure of scarlet fever, smallpox, or measles, by means of remedies applied to the skin solely with the view of relieving the eruption. Still, in every chronic disease, it is manifestly desirable to diminish, by topical means, the annoyance or disfigurement arising from the cutaneous affection. This relief cannot but be serviceable if it did nothing else than afford time for the due and gradual employment of a well-directed constitutional treatment. Dr. Graves saw this lately well exemplified in the case of a young lady who had been under the care of an eminent London surgeon for many months, and from whose medicines she had derived no relief. She was the subject of a most disfiguring eruption, agreeing in character with the *lupus supiginosus* of late writers; it occupied sparsely the nostrils and cheeks, but on the forehead it formed an extensive group of sores. Some spots it left hypertrophied after healing, but in general its course was marked by white depressed seams. It had been the seat of constant irritation, which the patient could not avoid increasing by scratching during sleep, and consequently the surface of the face usually exhibited a number of bloody points, adding to its disagreeable appearance. The entire eruption healed after a six weeks' application of the gutta percha, and she is now (what she had not been for two years) free from any cutaneous irritation. Time alone can determine whether relief will be permanent; but there can be no doubt of the great value of the advantage already gained.

Dr. Graves observes that, in psoriasis and other chronic cutaneous complaints unattended with any constitutional derangement, it is of the greatest consequence to check the growth of each new spot. This the gutta percha does most effectually in psoriasis, and when applied daily to any recent points of irritation, it smothers, as it were, each nascent centre of future blotches.—*Dub. Quart. Journ.*

*Debate on Tracheotomy in Epilepsy at the Medical Society of London.*

—Dr. Radcliffe read a paper “*On the Questionable Utility of Tracheotomy in the Treatment of any kind of Epilepsy.*”—In order to arrive at the object of his paper, the author depended chiefly upon a critical examination of the cases of epilepsy in which tracheotomy has been practised, and to this examination he at once proceeded :

*Mr. Cane's Case.*—The patient was a boatman, aged twenty-four, who had been epileptic for seven or eight years. The fits were severe and frequent. The operation was performed during a fit, in consequence of a state of asphyxial-coma that had lasted nineteen hours. The relief was immediate, and no fits have followed the operation. The habits of the patient were very irregular and intemperate, and he was discharged from his employment on this account about ten months ago. The tube is still worn, and curiously enough, it is worn with a cork in the opening.

*Mr. Anderson's Case.*—The patient in this case was a stout, thick-set, muscular female, aged thirty-six, the daughter of an epileptic father, and herself epileptic for twenty-four years. Her complexion was ruined by the former use of nitrate of silver. The operation was performed in March, 1851, and the tube was worn until her death, which happened in a fit about four months ago. After the operation the fits continued as before—possibly a little less frequently and severely, but decidedly of the same character. Her health and spirits also are said to have undergone some slight improvement, and she lost a numbness in the right arm which had previously distressed her, but those who knew her best doubt the existence of any appreciable change of this kind until about two or three months before her death—sixteen months after the operation. The following notes of the final seizure are from Mr. Anderson :

“Eight A. M. : Had been up and dressed ; heard to fall heavily. A woman removed the inner tube from the trachea as she was in a fit apparently more severe than usual. She ‘snorted loudly ;’ nails of a deeper color. She was placed on the bed, as the woman thought she would recover as usual.” The woman here referred to says the patient was black in the face and violently convulsed, and that death must have taken place within ten minutes. The body was examined twenty-four hours after death, and the following are the particulars supplied by Mr. Anderson :—“Body extremely muscular ; cadaverous rigidity still present ; not much fat. Head : Vessels of scalp much congested ; skull thick, and dura mater so universally adherent that the skull-cap could not be removed until the dura mater was divided. The sinuses were filled with dark blood, and on the removal of the brain an unusual quantity of dark blood flowed from the spinal canal. On either side of the longitudinal sinus, and on the inner side of the frontal bone, two or three growths of bone were found, and to these the dura mater was so firmly adherent that, on attempting to separate it, it was torn through, and portions remained attached. The largest of the exostoses was about an inch and a half in circumference, and projected about half an inch from the surface of the bone. No alteration was observed in the corresponding portion of the cerebrum. The brain was softer than natural, and the puncta were more than usually distinct. There was little fluid



in the ventricles, but the choroid plexuses were congested. Lungs: These organs were collapsed, occupying but little more than a third of the thoracic cavity, and somewhat congested at their posterior margin; structure healthy. Heart: Larger than usual (perhaps a fourth;) cavities, especially the left, distended with blood. It was surrounded with fat, and its structure flabby;\* valves healthy. Liver, kidneys, and spleen: Highly congested. Uterus natural, but cysts containing viscid fluid in the ovaries. Small intestines (especially lower part of the ilium) congested, and the mesenteric glands enlarged. Internal jugular, above the level of the omohyoid, almost empty."

*Mr. Mackarsie's Case.*—R. W——, aged forty, and epileptic for twenty years. Latterly the fits had become much more frequent and severe, the subsequent torpor much prolonged, and the mind much impaired. His complexion had a congested, mahogany-like tint. Two years previously he had had two attacks of paralysis, but his present health, apart from the fits, is pretty good. Tracheotomy was performed on the 24th of August, 1852, by means of the tracheotome. On the day following the operation inflammatory action began in the lungs, and continued until the 6th of August. Thus,—August 25th: "A large quantity of mucus has passed from the tube." 26th: "The patient has been hot and feverish, and passed a restless night; tongue furred; pulse 100; a large quantity of mucus passing through the tube." 27th: "Pulse 100, full and hard." 28th: "Tongue still furred." 31st: "Violent hæmoptysis." Sept. 1st: "Violent return of hæmoptysis;" "left lung congested, dull on percussion, and respiratory murmur feeble." 2d: "Expectorates bloody mucus;" "dulness on percussion not so marked; respiratory murmur more audible." 3d: "Still bloody expectoration." 4th: "Pulse 90 and soft." 6th: "Pulse 75, soft; respiration free; dulness on percussion gone." Again, on the 20th September, and for some days afterwards, there was feverishness, attended with bilious vomiting, requiring salines, calomel, and prussic acid. The fits, however, kept away until the second week in October, when four or five slight ones happened. After this true fits made their appearance, and continued to recur with their usual frequency, though in a mitigated form, until about two months ago, when the tube was withdrawn by the patient's wife, (who throughout has been greatly opposed to, and dissatisfied with the operation,) since which time the fits are as bad as ever, and the mental condition worse than ever. Mr. Mackarsie is fully of opinion that during the time the tube was in the trachea the mind was more active, the complexion less congested, and the fits less severe.

*Mr. J. A. Lockhart Clarke's Case.*—In this case the patient was a female, twenty-three years of age, who had been epileptic for twelve years. The fits were very violent and very frequent. Laryngotomy, not tracheotomy, was performed about three months ago, and the tube worn until recently, when it was removed, in consequence of their being no perceptible alteration either in the frequency, or in the severity of the fits.

\* Dr. Jenner examined a portion of this heart microscopically and found some slight degree of fatty degeneration.

*Mr. Henry Thompson's Case.*—The main facts of this case are substantially these: The patient was an epileptic of twenty years standing, whose intellect had suffered considerably. Tracheotomy was performed nearly three months ago. Before the operation the fits were frequent and violent, and the subsequent sopor prolonged; since the operation the fits have altered little in frequency and violence, but the subsequent torpor is greatly abridged. The general health also is improved, and the mind much clearer than it was.

*Dr. Tyler Smith's Case.*—Sarah B——, the wife of a gamekeeper at Debden in Essex, and the mother of four children. She has been epileptic since puberty, and chiefly about the menstrual period. The numbers of the fits during the month were sometimes as many as twenty, but generally not more than five or six. The fits themselves were usually preceded by the scream and attended with much lividity of the head and neck; the convulsions were very violent and the subsequent sopor protracted. The mental state was one of great inanity. There had been several paroxysms of insanity, and twice the patient had been in a lunatic asylum. During the month that she remained in the hospital before the operation there were nine fits; during the month after the operation there were five fits. The operation itself was performed on the 13th of February by Mr. Lane. On the 15th, 16th and 17th she was restless, wakeful and unruly, with heat of skin, raised pulse, and furred tongue. She threw a glass at the nurse, and persisted in attempting to withdraw the tube from the neck, and her state required constant watching. Three weeks after this she was greatly depressed, her pulse feeble and wretched, her countenance anxious, and much viscid, foetid phlegm passed from the tube; and this state continued for the greater part of a week. Since this time she has rallied, and now her mental condition is much better than it was during the month before the operation; her fits also are much better, the period of sopor is somewhat abbreviated, and the cry is lost; but still the convulsion is violent, the venous turgescence of the head and neck considerable, though less than it was, and once at least the tongue has been bitten.

*Dr. Andrea Verga's Case.*—This case cannot strictly be classed with the former cases, for the operation was performed unintentionally, and by the patient himself; but in all other respects it fulfils the required predicaments. It was originally reported in one of the Lombard journals, and copied thence into an early number of Schmidt's *Jahrbuch* for 1852. The main particulars are the following: A. B.——, aged twenty-five, was admitted into the great hospital at Milan, with his throat cut and his genitals severely mutilated, in consequence of a determined attempt at suicide. Six months afterwards the wounds had healed, with the exception of a free fistulous opening in the trachea; but the fits and despondency had undergone no change. The breath passed freely in and out of the artificial opening, and the fits recurred with equal frequency and force whether that opening were closed or not. In this state he was removed to a madhouse, and there he remained for three years, when he died of tabes, the fistula continuing open and the fits unabated up to



the end. After death the brain and skin were found congested and the bowels somewhat ulcerated.

*Comments.*—Such are the chemical data upon which as yet the remedial value of tracheotomy in epilepsy has to be tested, and the question is whether or not they realize Dr. Hall's expectations, and justify the comments which have been passed upon them.

What of Mr. Crane's case? Here undoubtedly the results seem most marked, but do they not prove too much? There are no fits whatever after the operation, and this is not to be expected even on Dr. Hall's own premises. Moreover, fits do happen in all the other cases, and in some of them very severe fits, and this fact gives a probability of at least seven to one that the fits in this case did not keep away in consequence of the operation. It is to be remembered also, that the wearing of the cork in the tracheal tube did in fact place the patient in the same predicament as that in which he was before the windpipe was opened. Why the fits kept away it is not necessary to inquire, for nothing is more certain than that epilepsy may suddenly disappear and keep away for a long time, without any apparent cause.

What of Mr. Anderson's case? Here the main questions are as to the character of the fits, the state of the general health, and the cause of death. Were the fits improved in character? Possibly, but not probably. Dr. M. Hall, in his lectures at the College of Physicians, allowed that a fit had followed very shortly after the operation, in which the tongue had been bitten. A Mrs. Dwellie, living in the adjoining garret to the patient's, and who frequently went to the patient's assistance when she heard the noise and struggle of the fit, states explicitly that the convulsions were as frequent and violent, and the subsequent sopor as prolonged, after the operation as before it. A Mrs. Smith, also, an aunt of the patient, who had known her from childhood, and who saw her several times a week during the whole of her life, makes the same statement. Miss Lewis, on the contrary, who lives on the first floor of the house in the garret of which the patient lived, thinks the fits, after the operation, were not so severe or frequent as before it; but why she thinks so is not very evident. She saw her in but few fits, and in none (there is reason to believe) from the commencement. Indeed it is to be understood that this witness was infirm and half-crippled, and often quite an invalid; that she had to be fetched from the top of the house, and then to mount up two flights of stairs before she could get to the place where the patient was; so that the fit must have been far from its commencement before she could see it. The last fit, also, which was evidently of great violence, is spoken of only as "apparently more severe than usual," showing that the ordinary fits were severe, and the patient was "expected to recover as usual," showing that death had occurred unexpectedly in what was regarded as an ordinary fit. Concerning the state of the general health there are two opinions. Miss Lewis says this was better; Mrs. Dwellie and Mrs. Smith say there was no perceptible improvement until within two or three months from her death, fifteen or sixteen months after the operation. The cause of death is very obscure. It could not be, however, from the strangulation

of laryngismus, for the inner tube was removed at the beginning of the last fit, as it was in all the fits in which the patient was watched. Indeed there was never any neglect or mismanagement about the tube, (which reflects the highest credit on Mr. Anderson's mechanical ingenuity,) and the patient herself had so schooled herself to it that she could remove and cleanse it, and did so remove and cleanse it many times a day. The fatty state of the heart, as Dr. Hall supposes, might have had something to do with death, for death happened shortly after the commencement of the seizure; but, on the other hand, it is not to be forgotten that there was stertorous breathing, blackness and turgescence of the head and neck, with distended sinuses, distinct cerebral puncta, and other signs showing that death might have been caused by coma.

What of Mr. Mackarsie's case? Here it is not difficult to imagine that the pulmonary inflammation and the subsequent febrile action may have had something to do with the absence of the fits during the first two months after the operation, for inflammation and fever are not only uncongenial to, but incompatible with, epilepsy. This inflammation also, even after its cessation, may have had something to do with the amelioration of the fits, by acting derivatively in regard to that mischief in the brain, the existence of which is to be argued from the two former attacks of paralysis. The fact, however, is not to be doubted—that the fits were "mitigated" and the mental state ameliorated after the operation. This is undeniable. Still the fits were true fits, and not mere warnings, and there is little if any reason for supposing that they gave up the characters of *epilepsia gravior* for those of *epilepsia mitior*; nor is it clear that the mind was not invigorated by hope or some other psychical stimulus, and that the fits were not subdued by the mind thus invigorated, the tracheal tube all the while acting merely as a charm by which to propitiate hope and her allies; nor is it clear that any diminished sopor after the fit may not have been the consequence rather than the cause of the mental invigoration. Time must elapse before these doubts can be resolved, and in the meantime it must not be forgotten that the wife of the patient was opposed to and dissatisfied with the operation.

What of Mr. Clarke's case? Nothing favourable to the operation.

What of Mr. Henry Thompson's case? In this case the fits recur as frequently as before, but the subsequent sopor and intermediate stupor are greatly diminished. Still it is by no means certain or even probable that the fits after the operation were of the character of *epilepsia mitior*, or that the diminished sopor and stupor were not the consequences of faith in the operation rather than of the operation itself.

What of Dr. Tyler Smith's case? In this case it is more than improbable that the fits underwent that modification which they ought to have done, or that any improvement in the symptoms is really due to the operation. All the fits after the operation were certainly not of the type of *epilepsia mitior*, for the convulsions were severe, and once at least the tongue was bitten. It is doubtful also whether the fits were really less frequent. During the first month of hospital life there were, it is true, nine fits, but this was a time when the patient was exposed to the agitating publicity of a hospital ward, with the fear of an operation before her



eyes. The usual number of fits during the month would also seem to be from five to six, though occasionally ranging so high as twenty, and these numbers correspond with the numbers after the operation. It is clear also that as yet little can be said about mental improvement after the operation, seeing that a paroxysm of insanity and a week of extreme mental inanity form a part of this period. This being the case, it is not necessary to speculate whether such improvement is psychically or somatically the result of the operation.

What of Dr. Andrea Verga's case? Possibly very little, but certainly nothing in favour of the operation.

On looking over these cases, therefore, one conclusion is inevitable—namely, that severe fits have followed the operation—fits in which the tongue has been bitten, and one fit in which death has happened. Almost uniformly the convulsion has been as bad as ever. In Mr. Anderson's, Mr. Clarke's, Mr. Mackarsie's, and possibly in Dr. Andrea Verga's cases, the sopor after the fit, and the torpor between the fits were unaffected; in Mr. Henry Thompson's, and possibly in Dr. Tyler Smith's cases, they were relieved, though *how* they were relieved remains a matter of doubt. As judged, therefore, by the results of the cases in which it has been practically tested, the utility of tracheotomy in epilepsy would seem to be extremely doubtful; so doubtful, indeed, as to render it a matter of paramount and imperative necessity to pause and ponder well upon the evidence before again resorting to it, and this all the more because it is by no means certain that the remedy is not more dangerous than the disease, and because the inevitable result of the operation is to convert the patient into a dumb, whistling wretch, whose every breath is an annoyance to himself and others. In order to do this it will be necessary to examine epileptics, whose windpipes are sound as well as those whose windpipes are not sound. It will be necessary to determine how much of the epileptic asphyxia depends upon spasmodic "setting" of the whole chest, and how far this "setting" will negative the results of an opening in the windpipe. It will be necessary to go to the root of the matter, and determine whether, apart from organic disease, the larynx does close spasmodically in epilepsy, and whether such closure can exist at the time of life when epilepsy happens. In the meantime the absence of any stridulous inspiration in epilepsy, such as is heard in laryngismus stridulus, in the hooping-cough of children, and in certain organic diseases of the larynx, would seem to be a serious, if not fatal objection to the idea of laryngismus in epilepsy. The age of epileptics—namely, youth and manhood—is also an objection to the same effect; for judging from the history of laryngismus stridulus and hooping cough, pure spasmodic closure of the larynx is usually confined to the period antecedent to that at which epilepsy commences; indeed, as a rule, laryngismus stridulus is an affection of teething, and hooping-cough loses its characteristic hoop before puberty. This deduction is also borne out by the results which follow the division of the laryngeal nerves in the lower animals, as dogs and cats; for in these experiments the young animal is immediately suffocated by the closure of the glotti-

dean chink, whereas the old animal goes on breathing without any evident diminution in the current of air.

Dr. Crisp regretted the absence of Dr. Marshall Hall, and was disposed to regard with favour the operation proposed by that gentleman. He deemed the whole subject worthy of further inquiry. Many epileptic patients are anæmic, but others are plethoric.

Dr. Barnes believed the subject to be very important, and the discussion of it not premature. He gave credit to the author of the paper for having recited the cases with fairness and candour, but inferred that Dr. Radcliffe had misapprehended Dr. Hall's views on the subject. He affirmed that each of the cases recited had exhibited marked improvement after the operation. Mr. Cane's case had been very successful; he admitted that. Mr. Anderson's patient had not died from asphyxia; but he did not admit Dr. Radcliffe's explanation. Dr. Jenner had found the heart in a state of fatty regeneration—a physical condition likely to cause death. Laryngismus is not met with in every case of epilepsy, neither is its presence essential.

Dr. Winn stated that epilepsy is not essentially accompanied by an anæmic condition of system.

Dr. Tyler Smith, in reference to his own case, explained that the attack of mania after the operation was probably to be attributed to the influence of chloroform. The fits are slighter, and the condition of the mind is clearly improved. He believed laryngismus to be essential to the disease, and that it occurs in adults without the stridulous breathing, except that the peculiar cry is a modification of that symptom. Lividity of countenance may be induced by spasms of the muscles of the neck, without the occurrence of laryngismus or closure of the glottis. Tracheotomy is not a serious operation.

Mr. Dendy thought that Dr. Hall had not been hardly treated, and that the cases had been fairly recited by Dr. Radcliffe. Tracheotomy is proposed, not as a remedy for epilepsy, but to relieve one of its symptoms. It is not a dangerous operation; yet he doubted if medical men would themselves submit to it. Laryngismus is neither the essence nor the proximate cause of the disease, and when it occurs it may pass away without the exhibition of any remedy. It is not important to decide whether this disease be essentially anæmic or not, but the case must be treated according to the nature of the patient's constitution. Congestion is not always productive of asphyxia, and may be relieved in some cases without the operation, or indeed without any remedy whatever. He believed that the good effects of the operation had been exaggerated.

Mr. H. Thompson, on referring to his own case, believed that the nature of the fit had been well made out, and stated that the family were unanimous in asserting that much benefit had followed the operation. The mind is clearly improved. He had witnessed the occurrence of a fit that morning, and found that loss of consciousness continued but during three or four minutes, instead of four hours, as had usually been the case previous to the operation. On that occasion the tube was not in a clean condition, and the same fact had been noticed on the occurrence of all the fits subsequent to the operation. He had removed the tube, and observed that respiration appeared to be suspended for a few



seconds, no sound indicating the passage of air through the trachea. Mr. Bullock described the present improved condition of Dr. Tyler Smith's patient.

Dr. Camps approved the operation under the circumstances selected by Dr. Marshall Hall. He considered that an attack of epilepsy is not antagonized by existing inflammation or fever.

Mr. C. Clark mentioned a case which he had relieved by artificial respiration.

Dr. Radcliffe, in reply, said that he had taken up the question under consideration, not because it clashed with any of his own opinions respecting convulsive diseases,—which it did not,—but simply as a matter of fact that from its importance ought not to be passed over any longer. He had frankly expressed his present convictions, but he was perfectly willing and ready to change them whenever they were shown to be wrong. He had, he trusted, acted with all honor and sincerity, and his only regret was that Dr. Marshall Hall, (whom he and all the profession highly honored) had not been present in person to hear and reply to what he had ventured to say. In reply to an observation that had been made in the discussion, he would only say that he could not understand how the epileptic cry would be a proof of laryngismus.—*London Lancet*, May 14th, 1853.

#### SURGERY.

*Tracheotomy in a Case of Croup Successful.* BY WILLIAM CRAIG, Esq.—The subject of the following case was Master William A., aged 7. He is of a delicate and somewhat irritable constitution, and has had enlarged tonsils since he was three years of age. The enlargement of the tonsils has not been uniform, but liable to variations in size, from occasional exposures to cold. The frequent application of a weak solution of nit. argent. had only a partially beneficial effect, as the tonsils always continued less or more swollen.

To invigorate his constitution, and improve the affection of the throat, he was brought from Glasgow to the coast, to obtain the benefit of the sea air. I saw the little patient for the first time on the 23d of March. I then found the tonsils more than usually red, and pretty much swollen, and, on the most projecting part, they were partially ulcerated. I touched the ulcerated portion of the tonsils lightly with nit. argent., and recommended counter-irritation around the neck.

On entering his room on the following day, the first sound that met my ear was the well-known ringing cough of croup. My little patient was immediately subjected to the most rigid antiphlogistic treatment. Emetics and purgatives were freely administered, warm salt placed round the throat, and leeches applied during the first day of these croupy symptoms. On the second day, no improvements being apparent, the emetics were given in more decided doses; but their effects were more depressing than emetic. Besides antimony, ipecacuanha and sulphate of zinc were perseveringly administered by anxious and trustworthy

attendants. Calomel was also given in repeated doses, accompanied by mercurial frictions, but without any specific or beneficial effect. A blister was also applied to the side of the neck. Notwithstanding all these measures, the disease progressed to the full developed stage. On the fourth day of the disease, the emetics and other measures were continued, without the slightest melioration of the symptoms, as every repeated paroxysm returned with aggravated violence, and threatened immediate suffocation. I had had a dread from the first that the case might come to this extremity, and had resolved—and had the concurrence of Dr. Paterson, from Glasgow, in the propriety of my resolution—to give my patient the benefit of tracheotomy as a *dernier resort*. Dr. Whiteside, of this town, was also of opinion that my patient should have the chance of the operation; and he assisted me in the performance of it. The boy was seated on the knee of an assistant. A free incision of fully two inches in length was then made, without losing a drachm of blood; and every drop was removed before opening the trachea. It was opened to the extent of an inch fully, and the incision was at the same time carried through the false membrane. Immediately on the opening being made, the membrane was seen vibrating in the trachea, and a violent expiratory effort caused a large portion of it to be forced out; and the patient was immediately and completely relieved. The larger portion of the membrane thus ejected was about two inches in length and, at its greatest breadth, was fully an inch and a quarter. There were two small fragments thrown out at the same time, which, when added to the largest piece, made it of a uniform length and width. It was fully a line in thickness, and, in tenacity, it somewhat resembled that of an orange skin.

For a number of hours after the operation, there was little cough and no expectoration; but there was a considerable discharge for some time after this, without any bronchial or other pulmonary irritation which could be discovered to account for it. The discharge might, in my opinion, be supplied for the most part by the solution of that portion of the membrane which lined the trachea between the glottis and the opening. On the third day after the operation, the tube was found more than usually obstructed; and, on removing it, a portion of thin, membranous matter was flapping in the wound. Part of this was forced out by the expiratory efforts; and another portion adhered so firmly, that some force was necessary to separate it from the attachment it had with the inner surface of the trachea above the wound. This was evidently that portion of the false membrane which filled the trachea between the glottis and the upper part of the wound. A portion of it had a distinct tubular form; but it was remarkably attenuated, having rapidly dissolved after the opening through the trachea had been effected. In the course of eight days after the operation, the natural air passage had become so clear, that the tube was removed, and the respiration was established in its natural course. There was a partial return of the croupy cough on the 22d of April; but it became speedily better, and he has since continued to progress most satisfactorily, and is now nearly well, and the wound in the neck is now cicatrised. There was some



suspicion that this attack was connected with scarlatina, as a younger sister of our little patient died at the same house from a severe attack of fever, accompanied by the species of sore throat peculiar to this affection. What, in addition, gave countenance to this apprehension, was the desquamation, to some extent, of the cuticle, from the anterior part of the chest; but this might have depended exclusively on an erysipelatous condition of the skin around the incision, and extending down the anterior part of the chest a few days after the operation. The age of the patient, and the uncomplicated condition of the complaint—there was no pulmonary affection—were very encouraging circumstances in this case. Another circumstance which, in my opinion, promoted a favorable result, was the free opening in the trachea, as a strong expiratory current was permitted, which forced out the whole of the false membrane which was situated below the incision. The false membrane reached about an inch below the lowest point of the incision, very near the bronchial bifurcation. Some authors mention, that there is no prospect of success if the membrane extend below the point chosen for incision.

I do not consider that the question of tracheotomy should be delayed till the leaden hue of the countenance and purpled color of the lips evince to what extent the vitiation of the circulating fluid has advanced. The hopelessness of the case can be easily prognosed before the affection has advanced so far; and if an earlier period were generally chosen, there would, in all probability, be less chance of the extension of the false membrane into the bronchial tubes. It would have been hopeless to have expected the expulsion of the false membrane through the glottis, when, even in the attenuated condition in which the last portion came away, it required considerable traction with forceps to separate, or, rather, tear it from its adhesion to the inner surface of the trachea. Though the membrane had been loose in the trachea, such a mass coming up through the glottis with diminished expiratory efforts to force it through would inevitably have produced suffocation. Although the lower edge of the membrane was unattached to the walls of the trachea, it was firmly connected with the upper part, as was evinced by the strong adhesion of the attenuated portion that came last away.

The greatest number of authors who write on this disease consider tracheotomy as a hopeless expedient to save patients laboring under this formidable malady. If one can be saved out of ten, or even a much smaller exceptional proportion, I see no good grounds to withhold from a little sufferer the only chance which he has of being snatched from the jaws of death.—*Med. Times and Gaz.*

---

*The Coagulation of Blood in Arteries by Means of Solution of Perchloride of Iron—Aneurism of the Suborbital Artery Cured by this Means.*—Our readers, no doubt, remember the interesting account communicated by M. Lallemand to the Academy of Sciences, of the experiments made by M. Pravas of Lyons. This question having been lately brought before the Surgical Society of Paris, connected with its successful application in man, we will briefly detail in what M. Pravas's method consists.

He makes use of perchloride of iron at the maximum of concentration, a few drops of which it is to be injected into the vessel in which it is desirous to obtain coagulation. This injection is to be made with a very fine trocar, of either gold or platinum, the diameter of which is scarcely greater than that of a needle; this is to be introduced very obliquely, through the parietes of the artery, with a wriggling motion. To this trocar is adjusted a small syringe, the piston of which works with a rack and pinion motion, so that the injection proceeds without impulse, drop by drop, and in such a way, the quantity of liquid injected can be accurately measured. Every turn of the pinion allows of the escape of two drops of the liquid. Whilst this injection is used, the circulation is momentarily arrested in the vessel by means of pressure above and below. A few drops suffice (three or four in a sheep, six or eight in the horse) to form a solid and resisting clot.

Up to this time, the experiments had been only made on animals, but M. Lallemand expressed a hope to see them succeed in man. This appeal has been heard. M. Raoul Deslongchamps has just sent before the Surgical Society of Paris a case of aneurism of the suborbital artery treated with success by injection of perchloride of iron. It was a tumor situated in the suborbital region, affording pretty strong pulsations, isochronous with the heart's action. This tumor, for the cure of which compression had been used without effect, disappeared completely by means of the injection, as recommended by M. Pravaz, after presenting some inflammatory symptoms, which easily yielded to antiphlogistic treatment.—*Dub. Med. Press*, from *Gazette Medicale de Toulouse* and *Presse Medicale Belge*.

---

*Case of Traumatic Tetanus cured by the inhalation of Chloroform.* By Dr. TH. V. DUSCH, of Mannheim.—A patient, aged 26, ran a nail into the great toe of the left foot, on April 17th. On the 30th, he experienced difficulty in opening the mouth. On May 2d, the masseter and other masticatory muscles were contracted, and the mouth was closed. On the 5th, the symptoms were more severe; and on the 6th, there were tetanic spasms, returning every five minutes, combined with opisthotones. Morphine, bleeding, tobacco enemata, cupping, etc., were tried without avail. Pulse 112; skin warm. Chloroform inhalations were then directed. The tetanic symptoms disappeared during the narcotism, and the patient obtained some rest. Upon the return of the spasms, the chloroform inhalations were repeated, during which the pulse sank from 110 to 60. The author now endeavored to keep the patient in a state of constant excitement, and administered, between this date and 20th of May, 64½ ounces of chloroform.

21st.—The inhalations were discontinued; cold was applied to the shaven head, and a quarter of a grain of acetate of morphia was given every two hours. On the 4th of June the patient was well.

Dr. Bargigley of Lesbos, relates the case of a countryman, in whom tetanic symptoms came on after the ex-articulation of the third finger. The patient was cured by the same treatment.

A similar case is related in Langenbeck's Clinic.



The death of the patient in tetanus is caused by the cramps extending to the respiratory muscles and to the heart. It rarely occurs from loss of power in the brain or spinal cord, or from exhaustion. The course is usually acute, the tetanic symptoms ensuing in the following order:—trismus, cramp in the muscles of back and neck, the extremities often remaining free. Most patients die before the twelfth day. The prognosis is the more favorable the longer the disease lasts. The advantage of narcotising remedies consists in this, that the tetanic cramps become suppressed or rendered milder, and thus the respiratory act and the contractions of the heart proceed unimpaired. Chloroform, from being taken into the blood direct from the lungs, is preferable to all other narcotising remedies, which must be absorbed from the stomach. The effects of the chloroform inhalations must be continuous, the patient remaining days, and even weeks, more or less, under its influence, until a point of saturation is attained, characterized by the rapid production of the extreme narcotising effects, the patient during the intervals being in a state of obstinate excitement; head hot, face red, eyes glistening, frequent epistaxis, etc. Atmospheric air was mixed with the chloroform in Dr. Dusch's case.—*Med. Times and Gaz.* from *H. und Pfs. Ztschr.*, N. F. III. 1852.

#### OBSTETRICS.

*Successful Case of Cæsarian Section.* By Dr. DECOENE.—The author relates the following case of a female, aged 30, upon whom he had once before performed the Cæsarian operation. He saw the patient in the seventh month of pregnancy, November 5, 1852, together with Dr. Frédérick. She had then been forty hours in labor; and stated, that, on the previous evening, she had experienced a breaking or yielding sensation in the lower part of the abdomen, followed by discharges of blood from the vagina, insensibility and sickness. Since that time, both labor-pains and the movements of the child had ceased. The whole abdomen was very tender. Examination *per vaginam* detected a relaxed os uteri, about the size of a dollar; but neither the head nor other part of the child could be felt, although the limbs could be traced through the abdominal walls. Inasmuch as the author concluded that the uterus had given way, and the child had escaped into the abdomen, he determined upon an operation. After making the preliminary incisions, and opening the peritoneum, he came upon a mass of congealed blood, under which was a male infant, with the separated placenta, and the membranes still entire. It was easily removed; then to the operator's great astonishment, a second child, female, came to view. Both infants were dead. The uterus, which was contracted, exhibited along its front surface a slit, answering to the line of incision of the former operation. No hæmorrhage ensued; the abdominal wound was united; and, by November 24th, the patient was well.—*Gaz. des Hôpitaux*, 147; 1852.

Sichel observes, in reviewing the above in Schmidt's *Jahrbuch*, that women, who have the good fortune to recover after the performance of the Cæsarian section, appear to be singularly liable to rupture of the uterus along the line of the former incision in every subsequent preg-

nancy. Kaysen relates six such cases. The giving way of the cicatrix in the earlier months of pregnancy may lead to escape of the ovum, and the development of an extra-uterine growth.—*Lond. Med. Times & Gaz.*

*Further Researches on the Pathology of Phlegmasia dolens.* By ROBERT LEE, M. D., F. R. S., &c.—At a late meeting of the Royal Medical and Chirurgical Society of London, Dr. Lee read a paper on this subject. The author commenced his paper by observing that it was not till the publication of the memoirs of M. Bouillaud, M. Velpeau, and the late Dr. Davis, that the true nature of this disease was known. Up to this period various hypotheses had been advanced respecting the cause of the swelling in the lower extremities of puerperal women—mere speculations unsupported by facts; but the cases and directions of the authors just enumerated demonstrated that the true nature of the disease consisted in an inflammation of the trunks and principal branches of the veins of the lower extremities. In papers by the author, published in the fifteenth volume of the *Transactions*, the actual condition of the iliac and femoral veins was ascertained, and he had been led to infer that inflammation of the veins gave rise to all the phenomena in puerperal women of phlegmasia dolens, and that it commenced in the uterine branches of the hypogastric veins, and subsequently extended from them into the iliac and femoral trunks of the affected side. Other cases had been recorded in the *Transactions*, of crural phlebitis following ulceration of the mucous membrane of the intestines. Experiments performed by Pirigott in 1839, and by Reumert in 1840, on dogs, showed that the action of chemical and mechanical irritants was limited to the vein on which the experiment was made, and the extension of the inflammation in the veins was not common; and Stanius, who had collated and tested all the facts bearing on the subject, doubted whether inflammation of venous trunks admitted of being excited by constitutional causes, independently of local irritation. A series of experiments on the veins of the lower animals similar to those just mentioned had recently been made, and a paper on phlegmasia dolens had been read to the Society during the present session, not founded on actual observation of the disease as it occurs in the human subject, but upon experiments on the veins of the lower animals in which phlegmasia dolens had never been observed. The object of the present communication was to submit to the Society the observations which the author had made during the last twenty-four years in inflammation of the crural veins. The paper contained the record of forty-three cases of phlegmasia dolens. The first nine cases were accompanied by post-mortem descriptions, and preparations illustrating the disease; and the author was led, from the whole of the facts thus adduced, to the conclusions he had formerly expressed, “that inflammation of the iliac and femoral veins gave rise to all the phenomena of phlegmasia dolens, and that the inflammation commenced in the uterine branches of the hypogastric veins, and from them extended to the iliac and femoral trunks of the affected side.” The next series comprised the history of twenty cases, which the author thought furnished additional evidence in favor of this conclusion, though, in consequence of



the recovery of the greater number of the patients, an opportunity was not afforded of determining by dissection the actual condition of the crural veins. Nine cases followed, which demonstrated that phlegmasia dolens might occur wholly unconnected with pregnancy and parturition, and that in such cases the inflammation likewise commenced in the uterine branches of the hypogastric veins, and followed a course similar to what occurred in puerperal cases. In some of these the inflammation of the uterine veins was produced by cancerous disease of the os and cervix uteri; in others there was no organic diseases of any kind previously existing. The concluding cases were five, in which crural phlebitis had followed inflammation of the saphena veins, and of the deep veins of the lower extremities from fracture of the tibia and fibula, and the pressure of encephaloid tumors on the thoracic viscera. The author thought that these cases and dissections, as well as those of the distinguished authors whom he had quoted, proved in the most conclusive manner that inflammation of the iliac and femoral veins was the proximate cause of phlegmasia dolens, and that in puerperal women this inflammation commenced in the uterine branches of the hypogastric veins. It had likewise been demonstrated by morbid anatomy that phlegmasia dolens was a disease which might take place in women who had never been pregnant, and even in the male sex, and that, under all circumstances the proximate cause was the same.

Dr. Mayo inquired if, in the cases of phlegmasia dolens recorded by Dr. Lee, any peculiarity antecedent to the inflammation of the veins had been noticed?

Mr. Streeter asked if Dr. Lee had statistical information to give respecting the comparative frequency of the disease?

Dr. John Clark enquired if phlegmasia dolens, in the common acceptation of the term, and independent of other disorders, was always the result of inflammation of the veins. He thought the disease generally was very mild, and, in the experience of writers on the subject, not a fatal one.

Dr. Mackenzie said, that in the discussion of such questions as that which is now before the Society, it appeared to be important to distinguish between the facts which are alleged and the conclusions which are drawn from them. Now, in the present case, the facts alleged are that certain lesions of the crural veins are developed in the progress of phlegmasia dolens. The conclusions are that such lesions constitute the essence or proximate cause of the disease. He (Dr. Mackenzie) assented fully and entirely to the first of these propositions, whilst he dissented as fully and entirely from the latter; and as he was unwilling to enter upon the discussion of this question in a controversial spirit, he would make no reference whatever to the investigation which he had lately submitted to the Society on the subject of this disease, but would confine himself to a statement of such facts as were known to the profession, which appeared to him to be opposed to the theory of the disease which had been affirmed by Dr. Lee. The disease known as phlegmasia dolens was a very complex malady. It was one which was characterized not only by a morbid condition of the veins, but by a morbid condition of

the sensory, the motor, the lymphatic, and the secretory organs of the affected extremity also : and, accordingly, in all well-marked cases of the disease there was exquisite sensibility of the limb, especially in the track of particular nerves, loss of motor power, amounting sometimes to perfect immobility of the extremity, inflammation and obstruction of the lymphatic vessels and glands, and a general hot, tense, and elastic swelling of the limb, not simply arising from œdema, but possessing rather the character of active exudation than of passive effusion. Now, could all these lesions depend upon or be deduced from mere inflammation and obstruction of the principal vein of the extremity ? Were they ordinarily observed in cases of simple uncomplicated phlebitis ? Or, if not, was there anything in the anatomical or physiological characters of the veins to justify our deducing *à priori* from it ? And if we replied to these questions, as he submitted that we must, in the negative, he should ask whether those who adopt this theory have undertaken any particular investigation for the purpose of determining this point ? Or, in other words, have they reproduced the lesion of the veins in a simple, uncomplicated form, and observed such consequences to follow. Now, to these questions we must also reply in the negative, and it must be added that the whole matter rested purely on assumption. It had been assumed that because the crural veins were found obviously diseased in fatal cases of phlegmasia dolens such lesions constituted the proximate cause of the disease. No further steps had been taken to establish the truth of this doctrine, and that, therefore, had been taken as a matter of assumption which ought to have been made a matter of demonstration. Further, he would observe that the clinical history of the disease and the progress of symptoms did not support this theory. It was quite true that in some cases the first irritations commenced in the region of the femoral vessels, but in others it was far otherwise ; in some they commenced in the back, in others in the hip, sometimes in the calf of the leg, and more frequently in the popliteal region. Again, one leg might be affected alone, or both concurrently ; or the disease, after having attacked one, may pass on to the other, or a superior extremity might be affected ; and he had lately met with a case in which, after symptoms of the disease had successively declared themselves in the left lower and upper extremities, the malady ultimately established itself in the right arm, the whole right upper extremity being hot, swollen, and tense, the surface exquisitely painful, with loss of motor power, and a tense, corded condition of the the basilic vein. Now, it appeared to him that these facts were inconsistent with the theory that the proximate cause of the disease was essentially inflammation of the crural veins. They pointed to the existence of some more general and diffusive cause, in regard to which it was probable that phlebitis itself was but a secondary affection. Again, he would point to the general experience of the profession as being opposed to this theory. It was now upwards of thirty years since it was first promulgated by his friend and teacher, the late Dr. David Davis ; and although the facts upon which it rested were well known, it was yet very far from being generally adopted. Thus, in



this country Dr. Burns affirmed that the nerves were as much affected as the veins. Others regarded the lymphatic vessels as being principally affected; whilst many, dissatisfied with these restricted views of the pathology of the disease, preferred the theory of the late Dr. Hull, that it consisted in a general inflammation of the several organs and structures of the affected limb. So again, on the continent, the greatest difference of opinion existed respecting its nature and pathology; and whilst many affirmed that it consisted essentially in inflammation of the lymphatics, and others that it was a specific inflammation of the cellular tissue, nearly all agreed that in its general characters it differed widely from ordinary phlebitis. Now, this diversity of opinion existed notwithstanding that all were aware of the facts upon which the phlebotic theory of the disease rested, and it afforded a powerful argument against it, because it tended to show that when tested by general experience, and considered irrespectively of particular facts, and free from bias, it failed to account rationally for all the known phenomena of the disease, and consequently could be regarded as its proximate cause. Then in the sequela of the disease circumstances are met with which are inconsistent with this theory. We know, for instance, that after an attack of the disease, the crural veins were generally left impervious or obliterated, and yet it would happen that successive attacks of the disease might occur in the same extremity. Now, if it was true that the first attack left them in the condition described, it was difficult to understand how, having functionally ceased to exist, they could again take on functional activity, and become the seat of active inflammation. So also it happened after an attack of the disease, that the limb would be left for many years, or even for the remainder of life, in a weak, sensitive, and irritable condition, being easily affected by atmospheric and constitutional influences. It was easy to reconcile these facts with the notion that the nerves had been injured or damaged by the attack, but not with the idea that the veins alone had been affected. On all these grounds, then, it appeared to him (Dr. Mackenzie) that the phlebotic theory of the disease was either defective or erroneous. But assuming for a moment that it was correct, he would yet observe that it left much which was still to be explained. We had yet to learn the nature of that peculiar inflammation of the veins which was so exceptional and so different from ordinary phlebitis. Did it depend upon some peculiar disposition on the part of the venous coats to take on diffusive inflammation, or did it depend primarily upon the blood? If we adopted the first of these theories, we were bound to state the nature of the peculiarity, and the laws of its development. For to be satisfied with merely giving it a name and to speak of it as a "specific" inflammation was not to advance our scientific knowledge, but rather to take refuge, or to hide our ignorance under the shadow of a name. If, on the other hand, we accepted the latter view, and regarded the venous inflammation as dependent upon some morbid condition of blood, then, indeed, we might reasonably account not only for the peculiarities it presented, but for all the several lesions of other organs, and the structural changes with which it was

associated. Upon this view also we might reconcile the conflicting opinions respecting the nature of the disease which had been held by different pathologists, and the variations which it manifested in its symptoms and progress in different cases. But in accepting this view we must forego the theory that phlebitis was the proximate cause of the disease, and regard it, as it really was, as a secondary rather than a primary phenomenon; related to the other lesions of the extremity not so much in the order of cause and effect, but as being like them a parallel effect of some more general and diffusive morbid agent.

Dr. Lee, in his reply, entered into the literary history of the disease under discussion, from the time of Mauriceau to the present. He particularly dwelt upon the facts originally published by the late Dr. Davis, and showed at great length his (Dr. Lee's) own labors in this disease. In answer to Dr. Mayo, he said that there were no antecedent symptoms calling for any treatment. He knew nothing of the comparative frequency of the disease. In respect to the views advanced by Dr. Mackenzie, he could only say that, whilst he (Dr. Lee) admitted that there might be a blood disease present, it was consecutive to the inflammation in the veins. That inflammation was in reality the proximate cause of the disease. The scalpel had shown this; he thought that was sufficient, and could not understand what further was required.—*London Lancet.*

---

#### MATERIA MEDICA AND THERAPEUTICS.

*Broma and Dietetic Cocoa.*—Every body in New England, of course, is quite familiar with those two excellent articles of diet for invalids, bromo and dietetic cocoa, manufactured by Walter Baker, of Dorchester, Mass. Some years since, the special consideration of medical practitioners was called to these preparations, as appropriate food for the sick, in the various conditions of debility and prostration to which they are at times reduced, leaving the digestive apparatus too feeble to appropriate any but the most delicate nutriment. Medical gentlemen of eminence in this city were delighted with Mr. Baker's bromo; and from that period to this, its good character has been sustained. Another set of physicians have commenced business since that period, who may not have become familiar with the article; and we therefore refer again to the subject, for the purpose of reminding both our young medical friends at home and those at a distance, that they will derive important advantages from the use of these admirable kinds of food. Druggists in the interior would find their account in always keeping both on hand, with a view to meeting the prescriptions of medical attendants. From our own personal experience of the value of bromo particularly, we can speak decidedly in its favor. A dietetic course is not unfrequently quite as necessary as strict medication; and in recovering from a low state, it is one of the perplexities of a general practitioner's life, to determine what may or may not be safely adopted as a regimen.—*Boston Med. and Surg. Journ.*



*On Essential Oil of Ginger.* By A. PAPOUSEK.—The root of *Zingiber officinale* contains, according to Morin, an essential oil. To obtain this in sufficient quantity, ginger was submitted to distillation with water. With the water a yellow oil goes over, which possesses in a high degree the odor of ginger, and a burning aromatic taste. Its boiling-point is  $475^{\circ}$  F., its specific gravity 0.893.

The raw oil was deprived of water by pieces of fused chloride of calcium, and kept in a retort at a temperature below its boiling-point. At  $302^{\circ}$  F. a colorless oil evaporated, which, on analysis, gave the following numbers:—

|          |           |       |          |
|----------|-----------|-------|----------|
| Carbon   | . . . . . | 81.03 | 80=81.49 |
| Hydrogen | . . . . . | 11.58 | 69=11.72 |
| Oxygen   | . . . . . | 7.39  | 5= 6.79  |

$C_{80}H_{69}O_5 = C_{80}H_{64} + 5HO$ . This oil is therefore a mixture of hydrates of a hydro-carbon isomeric with oil of turpentine.

As the oil acquired a darker color, and began to undergo decomposition (as was known by the formation of water) when the heat was continued, the distillation was carried no further.

The raw oil was repeatedly distilled with anhydrous phosphoric acid. The yellow distillate gave the following numbers on analysis:—

|          |           |       |          |
|----------|-----------|-------|----------|
| Carbon   | . . . . . | 87.99 | 10=88.24 |
| Hydrogen | . . . . . | 11.88 | 8=11.76  |

The formula  $C_{10}H_8$  places this oil with the numerous series of hydrocarbons usually characterized as the camphene series. The separation of the hydrate-water appears to be effected with equal ease by the action of muriatic acid, as by that of anhydrous phosphoric acid.

If muriatic acid gas be passed into the raw oil, the latter acquires a brown color, even if care has been taken by cooling that the action should not be too violent. The brown oil, saturated with muriatic acid, was washed with water, then submitted to distillation with water, and the product, which is of a yellowish color, and contains chlorine, dried over chloride of calcium. As shown by analysis, these operations, employed for the purpose of purification, partially decompose the muriatic acid compound, forming a mixture of a muriatic acid compound in an unchanged state with a hydrocarbon which has lost its muriatic acid.

Analysis gave—

|          |           |       |    |       |
|----------|-----------|-------|----|-------|
| Carbon   | . . . . . | 73.39 | 80 | 73.45 |
| Hydrogen | . . . . . | 10.36 | 67 | 10.25 |
| Chlorine | . . . . . |       | 3  | 16.30 |

$C_{80}H_{67}Cl_3 = C_{80}H_{64} + 3ClH$ . This formula may be split in the following manner:— $3(C_{20}H_{16}, ClH) + C_{20}H_{16}$ .

According to this, the essential oil of ginger belongs to the same class of essential oils as the coriander oil. The ginger employed so plentifully as an aromatic in cookery, must therefore also belong to the camphene group of aromatics.—*Lond. Pharm. Journal, from Sitzungsber. der Akad. der Wissensch. zu Wien, and Chem. Gazette.*

*On the Preparation of Tannic Acid.*—On testing the method prescribed in the Prussian Pharmacopœia, for the preparation of tannic acid, Sandrock finds that it does not fulfil the desired object. In directing that water should be added to the ether employed, the authors of the Pharmacopœia would appear to have aimed at an approximation to the method originally adopted by Pelouze, in which crude ether was used; and to have assumed that when watery ether is used, the lower layer of the percolated liquid is a solution of tannic acid in water. However, Mohr found that this is not the case, but that the lower layer is a solution of tannic acid in ether; and Sandrock has obtained the same result on repeating his experiments. The addition of water to the ether is, therefore, useless, and moreover injurious, for the solution of tannic acid in ether is so thick that the percolation goes on very slowly, and sometimes stops altogether. The use of pure ether is open to the same objection.

The extraction of the tannic acid from galls may on the contrary be effected with ease by crude ether, and on account of the small quantity of alcohol which it contains. The alcohol facilitates the percolation by rendering the solution of tannic acid less viscid.

Instead of crude ether a mixture of sixteen parts ether and one part alcohol may be used with equally satisfactory results. The percolated liquid separates into two layers. The lower one containing the tannic acid may easily be separated, and yields a perfectly pure product on evaporation. The upper layer contains the gallic acid, coloring matter, and some tannic acid.

When a mixture of eight parts ether and one part alcohol is employed, the percolate still separates into two layers, but the lower one is smaller than when the proportion of alcohol is less, and the upper layer contains a considerably larger quantity of tannic acid.

Finally, when a mixture of four parts ether and one part alcohol is employed, the percolate does not separate into two layers, and it is difficult to separate the tannic acid from the impurities with which it is mixed.

By means of the above process a much larger product of tannic acid may be obtained than with either pure or watery ether. The tannic acid remaining in the upper layer may likewise be obtained by evaporating the liquid to dryness, treating the residue with pure ether, until the lower of the two layers into which the liquid separates no longer presents a green color. It is then separated, filtered, if necessary a little alcohol added, and evaporated.

The process recommended by Mohr, of treating the galls with a mixture of alcohol and ether in equal volumes, then evaporating the percolate which does not separate into layers, and regarding the residue as tannic acid, is altogether inadmissible, inasmuch as it gives a very impure product.—*Pharm. Journ. from Archiv. de Pharmacie.*

---

*On Black and Green Teas.*—Though the distinct preparation of green and black tea from the respective plants, the *Thea viridis* and the *Thea Bohea*, has been warmly advocated by many botanists, yet it is now



generally admitted by all parties, that green and black teas can be and are made, indiscriminately from the same parcel of leaves, taken from the same species of plant. It is nevertheless, well known to all persons, that the infusions from these teas have marked differences in color and flavour, and that the effects produced in certain constitutions by green tea, such as nervous irritability, sleeplessness, &c. are very different from those arising from the use of black tea. Their characteristic physical differences are well known; but they possess peculiar chemical properties to be noticed immediately, and which have always been ascribed by chemists to the effect of high temperature in the process of manufacture.

To explain these peculiarities, Mr. Warrington directs attention to certain changes which take place in herbs and vegetable substances dried in different modes. From observations made upon various substances of this kind, in the routine work of the establishment, to which Mr. Warrington is attached, especially the exsiccation of medicinal herbs, he had been led to form certain inferences as to changes taking place in these articles. These herbs are for the most part nitrogenous plants, as *Atropa belladonna*, *Hyoscyamus niger*, *Conium maculatum*, and others. The plants are brought to the establishment by the growers or collectors from the country, tied up in bundles, and when they arrive fresh and cool, they dry of a good *bright green* color; but on the contrary, it is found, that if they are delayed in their transit, or remain in a confined state for too long a period, they become heated, from a species of spontaneous fermentation, and when loosened and spread open, they emit vapors and are sensibly warm to the hand. When such plants are dried, the whole of the *green color* is found to have been destroyed; and a *red-brown* and sometimes a *blackish-brown* tint is the result. Mr. Warrington also noticed, that a clear infusion of such leaves, evaporated carefully to dryness, was not all undissolved by water, but left a quantity of brown *oxidized extractive matter*, to which the denomination of *Apothene* has been applied by some chemists. A similar result is obtained by the evaporation of an infusion of black tea.

The same action takes place upon the exposure of the infusions of many vegetable substances to the oxidizing influence of the atmosphere. They become darkened on the surface; and this gradually spreads through the solution, and on evaporation, the same *oxidized extractive matter* will remain insoluble in water.

Mr. Warrington further found that the green teas when wetted and re-dried, with exposure to the air, were nearly as dark in color as the ordinary black teas. From these observations, therefore, Mr. Warrington was led to form the conclusion, that the peculiar characters and chemical differences which distinguish black tea from green, were to be attributed to a species of heating and fermentation accompanied with oxidation by exposure to the air, and not to its being submitted to a high temperature in the process of drying, as has been generally believed. This opinion received some confirmation by ascertaining from parties conversant with the Chinese manufacture, that the leaves for the black teas were always

allowed to remain exposed to the air, in mass, for some time before they were roasted.

Mr. Ball, in his work on the manufacture of tea, has described in detail the whole series of these processes, fully confirming the opinion previously formed by Mr. Warrington. Some of these facts had been published in Batavia in 1844, by Mr. Jacobson in the Dutch language. In the preface to his work Mr. Ball says: "It will be seen by dates incidentally adverted to, that the facts and most of the materials of this work, were established and collected thirty years ago."—"These facts, as well as other materials, were derived from conversation with growers and manipulators from the tea districts; from written documents furnished by Chinese; from published works in the same language diligently sought out; and also from correspondence with a Spanish missionary long resident in the province of Fokin. These were all put into their present form full twenty years ago, and were read to one or two friends during my residence in China."—"They were not, however, so arranged, with any view to immediate publication."—"They were thus disposed as the best mode of recording and keeping together the facts and materials I had collected."—"But it was not till the year 1844, when I received Mr. Jacobson's Handbook on the Cultivation of Tea in Java, that I found my own views so far confirmed, and my information such, as to justify me in bringing my labors to a close."

Of these facts the following is a summary.

The processes peculiar to the preparation of black tea, are styled Leang-Ching, To-Ching, and Oc-Ching, and these all consist in carefully watched and regulated processes of *spontaneous heating* or *slow fermentation* of the leaves until a certain degree of fragrance is developed. The leaves are said to *wither and give*, and become soft and placid. The utmost care, practical skill, and experience is required in the properly conducting these operations; and as soon as the proper point is arrived at, the leaves are to be immediately removed to the Kuo or roasting-pan. After being roasted and rolled two or three times, they are then to be dried, and this is effected in the Poey-long, which consists of a cylinder of basket-work, open at both ends, and covered on the outside with paper; it is about  $2\frac{1}{2}$  feet in height and  $1\frac{1}{2}$  in diameter, which diameter is diminished in the centre like an ordinary dice-box to one foot and a quarter. This stands over and round a small charcoal fire, and is supplied with cross-bars about fourteen inches above the fire, on which an open sieve containing the tea is placed; and a small aperture about an inch and a half in diameter is made in the centre of the tea with the hand, so that an ascending current of air and the products of the combustion pass through and over the tea contained in the sieve. A circular, flat bamboo tray is passed partially over the mouth of this cylinder, and most probably serves to regulate the rapidity of the ascending current; prevent the admission of the cold air to the leaves, and at the same time allow a sufficient outlet for the generated watery vapors and the products of combustion. At the commencement of this operation, the moist leaves are still green and retain their vegetable appearance; after the drying has continued about half an hour, the leaves



are turned, and again submitted to the heat for another half hour; they are then taken out, rubbed and twisted, and after sifting away the small dust, again returned to the sieve and drying tube. This operation of sifting is very necessary, to remove any of the small tea or dust which might otherwise fall through the meshes of the sieve on to the fire, and the products of their combustion would deteriorate and spoil the flavor of the tea. The leaves have now begun to assume their black color; the fire is diminished or deadened by ashes; and the operation of rolling, twisting, and sifting, is repeated once or twice until they have become quite black in color, well twisted, perfectly dry and crisp. They are then picked, winnowed and placed in large quantities over a very slow fire for about two hours, the cylinder being closed.

Now, that this black color is not owing to the fire is evident; for in cases mentioned by Mr. Ball, where the leaves have been dried in the sun, the same color is obtained; and on the other side, if roasted first, without the process of fermentation or *withering*, and then finished in the Poey-long, a kind of green tea is produced.

In the operations for the manufacture of green tea, on the contrary, the freshly-picked leaves are roasted in the Kuo at once, without delay, at a high temperature; rolled and roasted again and again, assisted sometimes with a fanning operation to drive off the moisture; and always with brisk agitation until the drying is completed.

The marked differences in the mode of manufacture of black and green tea, will, after what has been stated, fully account for all the variation of physical and chemical properties already mentioned.—*Quarterly Journ. Chem. Society.*

---

## ANATOMY AND PHYSIOLOGY.

*Upon the composition of the semen in old men.* By DR. A. DUPLAY.  
—Bérard, Burdach, Muller, Longet, state, that spermatozoa are absent in the seminal secretion of the aged; Wagner alone asserts, that, in men of seventy to eighty years, these bodies are found in the vesiculæ seminales, if not in the testicle. Facts tend to prove that the fecundating power is retained up to the age of 100. The author investigated the semen in fifty-one subjects, after death caused by various diseases. In its physical properties the semen was sometimes of yellow color, as in the adult; generally of a paler straw hue, or almost colorless, milky or creamy. In twelve cases it was thick; but, in the greater number, it was serous, though mixed with the usual mucous secretion from the vesiculæ seminales. In most cases the vesiculæ seminales were full of fluid; in one only were they atrophied. The semen in the vasa deferentia was always darker-colored than that in the vesiculæ.

In thirty-seven cases the author remarked the presence of spermatozoa; in fourteen he failed in detecting them. In twenty-seven cases they were such as are usually seen in the healthy adult; in the rest the tail was shorter, and the head sometimes separated. Once he saw a number of crystals, whose nature he could not investigate. Considerable variety existed in their proportion.

In twenty-six cases, spermatozoa were found along the whole tract of the spermatic passages; three times only in the vas deferens; once only in the fluid of the vesiculæ seminales; seven times in the vesicula seminalis of the left side only. In the latter cases there existed mostly degenerations of the testicle, or obliteration of some part of the seminal duct. Secretion of semen continued, however, in cases where there was considerable atrophy of the testicle; the highest weight of which was 11.98 grammes; the lowest 4.50 grammes. The tissue of the testicle was always normal; the epididymis contained occasionally cysts. In four cases there was hydrocele. In the fourteen cases where there were no spermatozoa, the subjects had passed the age of seventy; but there were no special changes discoverable in the glands. The secretion of semen, concludes Dr. Duplay, continues in old men, but in a less degree; their semen contains spermatozoa even when the person is beyond the age for fecundation. The cause, therefore of want of power to effect this end cannot be explained upon the idea of the deficiency of spermatozoa.—*Medical Times, from Arch. Gen. Dec. 1852.*

*Discovery that the Veins of the Bat's Wing (which are furnished with valves) are endowed with Rythmical Contractibility, and that the onward flow of blood is accelerated by such contraction.* By T. WHARTON JONES.—In entering on the investigation of the state of the blood and the blood-vessels in inflammation excited in the web of the bat's wing, I applied myself, in the first place, to the study of the distribution, structure, and endowments of the arteries, capillaries and veins of the part, and of the phenomena of the circulation in them.

I had not observed the circulation under the microscope long, before I was struck with something peculiar in the flow of blood in the veins; I therefore directed my attention to them, and discovered that they contracted and dilated rythmically. Following the veins for some extent in their course, I further discovered them to be provided with valves, some of which completely opposed regurgitation of blood, others only partially.

The cause of the peculiarity in the flow of blood in the veins was thus no longer doubtful; but some continued observation was required before I was able to make out exactly its mode of operation.

The act of contraction of the vein is manifested by progressive constriction of its caliber and increasing thickness of its wall; the relaxation of the vessel, by a return to the former width of caliber and thickness of wall.

The rythmical contractions and dilatations of the veins are, in the natural state, continually going on; but sometimes with greater, sometimes with less rapidity, and sometimes to a greater, sometimes to a less extent. The average number of contractions in a minute, I have found to be ten. I have on some occasions counted only seven or eight, and on other occasions as many as twelve or thirteen. Most usually, the numbers were nine and eleven. The supervening dilatations take place rather more quickly than the contraction. The amount of constriction of one of the larger veins,—one about 1-300th or 1-400th of an inch in



width when dilated,—at each contraction of its walls, may be put down at a fourth or fifth of its whole width when in a state of dilatation; I have sometimes estimated it at nearly a third, sometimes at not more than a sixth.

The contractions *centrad* and *distad* of a valve appeared to be simultaneous, as did also the dilatations.

The smaller veins, those of the first and second order, proceeding from the radicals, contract, but not in a very marked manner, and are destitute of valves.

During contraction, the flow of blood in the vein is accelerated. On the cessation of the contraction, the flow is checked, and a tendency to regurgitation of the blood takes place, which brings the valves into play. Where the valves are perfect, the backward movement of the blood is at once stopped by their closure; but where the valves are not complete, the blood regurgitates more or less freely.\* But this check to the onward flow of the blood is usually only for a moment or two. Already, even while the vein is in the act of again becoming dilated, the onward flow of blood recommences and goes on, though comparatively slowly, until dilatation is completed and contraction supervenes; whereupon acceleration of the flow takes place as before.

It is to be observed, that in determining the flow of blood in the veins (the phenomena of which I have now described), the action of the heart is concerned as well as the contractions of the veins themselves. It appears to be the heart's action which maintains the onward flow of blood during the dilatation of the vein, whilst it is the contraction of the vein, coming in aid of the heart's action, which causes the acceleration. Sometimes the *vis a tergo* is sufficient to keep up a pretty steady flow in the veins, this being only accelerated at each contraction of these vessels.

The check to the flow of blood in the veins takes place at the completion of the contraction or commencement of the dilatation. The number of checks observable in a minute, therefore, corresponds with the number of contractions. In one case, while an assistant marked the time by a seconds' watch, I observed that a complete valve checked the tendency to regurgitation nine times in a minute; and on counting the number of contractions of the same vessel, I found them also nine in a minute. In another case, eleven checks and eleven contractions were counted; and so on repeatedly. Though I quote these little experiments, I would remark that, after some practice in the observation, the eye is quite able to take in at one glance the succession and relations of the two phenomena.

The valves of the veins are composed sometimes of but a single flap, sometimes of two. In the situation of a valve, and *centrad* of the insertion of its flaps, the veins present the usual dilatations or sinuses corresponding to the sinuses of Valsalva at the origin of the pulmonary

\* Sometimes, as for example, into a venous branch with an incomplete valve, a retrograde flow of blood takes place from a large vein, at the moment this latter is contracting and propelling its blood onwards.—May 7, 1852.

artery and aorta. These sinuses are best seen when the valve happens to present its flaps edgeways to the observer.

Valves are found close to the entrance of a large branch, but distad of it. They are also found at intermediate parts of the veins. Tracing the veins from radicles to trunks, the first valves I have noticed were at the junction of the second order of veins to form the third.

In watching the circulation, it is interesting to observe the backward eddy of blood-corpuscles into the sinuses of the valves, when the blood issues from the narrow valvular opening into the wide part of the vein beyond.

In structure, the valves are seen to be a reduplication of the clear innermost coat of the vein, with sometimes a pretty evident layer of fibrous tissue intervening.

Each vein is closely accompanied by an artery, a nerve only intervening. The average diameter of a vein is to that of its accompanying artery as about 3 to 2.

The contractility of the arteries is altogether different in its nature from that of the veins. It is *conic contractility*, not *rythmical*. On the application of pressure over an artery, this vessel may be seen to become constricted, sometimes even to temporary obliteration of its caliber, and that uniformly throughout some extent of its course, both above and below the point where the pressure was applied; or, the constriction is greater or less at intervals, so that the vessel presents a varicose appearance. This tonic contraction of the arteries of the bat's wing does not take place quite so quickly as the same phenomenon in the frog's web, and, ordinarily, continues a longer time.

The pulsation of a vein so affects its accompanying artery as to push the latter, as a whole, to and fro. That the movement of the artery referred to is really owing to this cause, and not to any pulsation or *rythmical* contraction and dilatation of its own walls, is evident from this, that the movements are synchronous with the contractions and dilatations of the vein, and that *both sides of the artery move in the same direction*, not approximating and receding from each other, so as to constrict or dilate the caliber, as in the case of the vein.

I have not been able to observe unequivocal evidences of tonic contractility of veins in addition to their *rythmical* contractility. When pressure is, at the same time, applied over the vein as well as the artery, the vein is not found to become tonically constricted in the same manner as the artery, upward and downward. At the place where the vein was pressed on, a mechanical indentation of its wall may perhaps be seen. And, in addition to this, there may often be observed an appearance of great and abrupt constriction. This appearance, however, is not owing to contraction of the walls of the vein, but to a deposit of a viscid-looking grayish granular lymph within the vessel at the place, obstructing its channel and narrowing the stream of blood. On watching, I have seen portions of this deposit detached and carried away by the stream of blood, with corresponding enlargement of the channel, and again an additional deposit with renewed narrowing of the stream. When the pressure has been considerable, I have seen the vein become for a time wholly obstructed by the deposit. A similar deposit of lymph takes



place in the artery. In one case, I observed that the artery, at the place pressed on, was actually not so much constricted as above and below, though, on account of the narrowness of the stream of blood from the presence of the lymphic deposit, it appears as much so at first sight.

Having subjected the web to the galvanic influence from a single pair of plates, I found all the smaller arteries of the part in a state of considerable tonic constriction, but the larger arteries constricted in a less degree. The effect of galvanism on the veins appeared to be to render their rythmical contractions somewhat more brisk, they having been previously rather languid. On cutting a vein across, I did not observe tonic constriction of it, any more than in the frog.

After the application of a drop of *vinum opii* to the web, the veins were found dilated as well as the arteries, and their rythmical contractions appeared to be suspended.

It has been stated, by an authority not liable to err, that, on mechanical irritation, both artery and vein of the bat's web gradually contract and close, and, by and by, dilate wider than before. And, again, that in bats, contraction of veins is quite as well marked as that of arteries.

These statements, it will be observed, imply tonic contractility of the veins.

Notwithstanding my attention has been repeatedly directed to the point, I have not, as previously stated, been able to observe unequivocal evidences of tonic contractility of veins, in addition to their rythmical contractility. For this reason, I cannot help venturing on the supposition that Mr. Paget must have made his statements either from a hasty and imperfect observation of the proper rythmical contractions of the veins; or, seeing that in rythmical contraction of the veins, the constriction is never to closure, like that of the arteries, under some such misapprehension as to the nature of the vessel observed, as he certainly must have labored under when he supposed that arteries and veins of the second and third order open directly into each other without any intermedium of capillaries.

The arteries and their subdivisions anastomose freely with each other, forming a network all through the web, the meshes of which go on to diminish towards the free margin. Each artery, and each subdivision of an artery, is closely accompanied by a vein; and these veins, like the arteries they accompany, anastomose with each other. But it is to be remarked, that nowhere do the arteries and veins directly communicate. The only communication is the usual one through the medium of capillaries. The capillaries, the walls of which are destitute of contractility, received the blood from small arterial twigs, which arise from the arterial network, and return it to the venous radicles which open into corresponding veins. These arterial twigs, capillaries, and venous radicles, form networks within the meshes of the great vascular network, and a looped network at a margin of the web.

The observations recorded in the preceding pages were made principally with one-eighth of an inch object-glass, and the two lowest eye-pieces, affording magnifying powers of 370 and 550 diameter.

The web of the wing was stretched out on the object-plate, wetted on both sides with water, and covered with a thin plate of glass at the spot to be examined.

*Appendix to the foregoing Paper.*

In consequence of the dark pigment in the cells of the epidermis of the web of the bat's wing, the structure of the vessels cannot be well made out except by dissection.

A small piece of the web containing vessels being detached and disposed in a drop of water, under the simple microscope, the two layers of skin may be readily torn from each other with needles, and the artery and vein, with their accompanying nerve, which lies between the two, separated in one bundle.

In pieces cut out of a web which had been dried, the bundle of vessels and nerve was, after tearing away the skin, left surrounded by a sheath of cellular and elastic fibres disposed longitudinally; but in pieces cut out from the living web and directly examined, this sheath was always detached along with the skin, and the vessels, with their accompanying nerve, at once laid bare.

Both artery and vein are seen to have a middle coat of circularly disposed muscular fibres; but the appearance of the fibres is different in the two vessels.

The fibres of the vein are about 1-3600dths of an inch broad, pale, grayish, semi-transparent, and granular-looking. In general aspect they very much resemble the muscular fibres of the lymphatic hearts of the frog. In none of the muscular fibres of the vein, however, did I detect an unequivocal appearance of transverse marking.

The fibres of the middle coat of the artery are not so pale-looking as those of the middle coat of the vein, are clearer, and exhibit a more strongly marked contour.

*Second Appendix.*

From a microscopical examination of the bloodvessels and circulation in the ears of the long-eared bat, I have ascertained that, different from what I discovered to be the case in the wings, the veins of the ears are unfurnished with valves, and are not endowed with rythmical contractility, and that the onward flow of blood in them is consequently uniform. I ought, perhaps, to qualify the statement that the veins of the ears are not endowed with rythmical contractility, by saying, that I think I noticed a very slight tendency to it here and there in a vein, but so slight as not to have the smallest effect on the flow of blood.

This observation regarding the ear of the bat illustrates how that the heart's action is sufficient of itself for the circulation of the blood in the body generally; but that being sufficient for that only, the supplementary force of rythmical contractility of veins, supported by the presence of valves, is called forth to promote the flow of blood in the wings, which on account of their extent, are, as regards their circulation, in a considerable degree, though not entirely, beyond the sphere of the heart's influence.

I may take this opportunity to mention, that I have also found the veins of the mesentery of the mouse destitute of rythmical contractility. —*Philos. Transact*, 1852.